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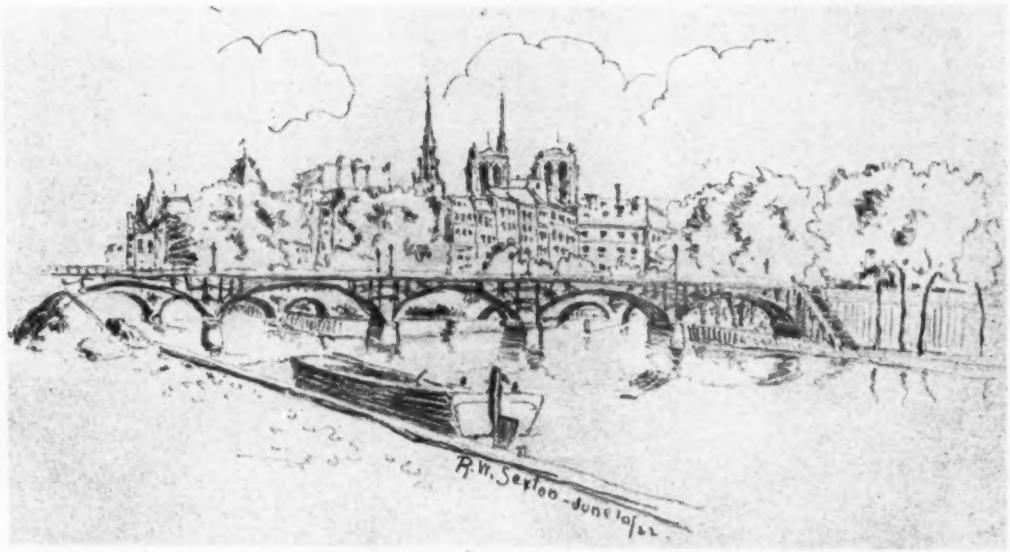

An example of out-of-door sketching. Looking down the Seine toward the old island city of Paris, with Notre Dame in the distance

AN ARCHITECTURAL SKETCHING TOUR *in* EUROPE *and* HOW I DID IT FOR LESS THAN SIX HUNDRED DOLLARS

BY R. W. SEXTON

Illustrated by Sketches by the Author

WHAT do you say to a couple of months' trip in Europe for a vacation? We could see many of the famous architectural masterpieces of the world, study periods and styles directly from original specimens, bring back sketches galore of ideas and suggestions, a lot of valuable photographs and have a good time thrown in. For the young student architect such a trip would be of more value than a degree obtained by successfully completing a university course in architecture; while to the older, seasoned architect a dozen sketchbooks, filled with sketches of designs and details he made himself from things which impressed him most on such a trip, would be of much more value than a dozen of the best architectural books that could be found in any library of the country. Unfortunately, the general reply to this proposition, no matter how much it might appeal, is lack of money. Up to one year ago, I would have said, too, that I could not afford it, but never again! Did you ever really figure out what a trip to Europe costs? I never did before, but when I got "down to brass tacks," I found it was actually within my means.

I got my inspiration this time (for I had gotten as far as the inspiration before, but that was all) at the movies. I was "taken" on a trip up the Grand Canal of Venice in one of those travelogue pictures, and was so carried away by the magnificence and grandeur of St. Mark's and the

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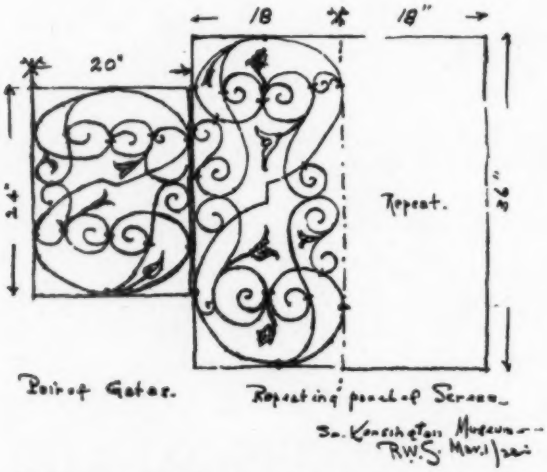
palaces of the canal, that I resolved then and there to find out definitely how much it would cost to get me there. Two days after that I had reserved a second class passage on the "Baltic" (good enough for anyone, especially out of season,—this was in February), I applied to Washington for my passport, notified my employer that I was leaving in two weeks, and surprised my family and friends by announcing that I was sailing for Europe in two weeks. I was laughed at by them, sneered at by my employer, but evidently applauded by my government, for I received my passport in short order. I had $500 in available cash, and this is how I figured it out:

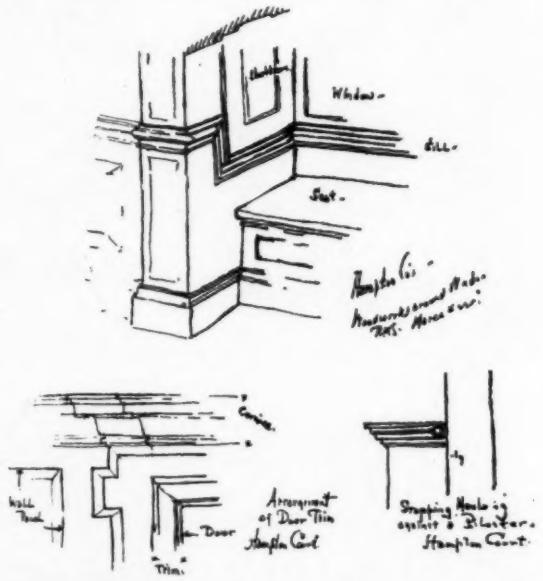
Steamer over	$130
Steamer back	130
Railroad, Europe	100
Living expenses	
8 weeks at $10	80
Extras	60
	$500

I got a lot of first-hand advice from several friends and acquaintances who had recently been over, and some good tips from the steamship agency on railroad fares, etc. The rate of exchange at this time was very favorable to me, but, I believe, is even lower now. The English pound was then $4.40, the franc 10 cents, and the lira 5 cents. Although I made no definite itinerary, I made a general route for my trip, knowing that I could change it at a moment's notice if I wished. I would always avoid tour tickets for this reason. My rough itinerary was New York to Liverpool to London, with two or three stopovers on the way, two weeks; steamer to Le Havre, to Rouen, to Paris, four weeks; to Venice, to Florence, to Genoa, two weeks, sailing home from there. I stuck rather closely to this route, changing only the latter part, for in Paris I took a job as tutor to two American architectural students in perspective sketching and rendering,—a great piece of luck for me,—and was taken by them on an automobile tour from Paris through Southern France and along the Riviera to Florence, to Venice and back to Paris by Switzerland. In this way I prolonged my trip two months and saw a lot of beautiful country that I would never have gotten to, and all with no additional expense.



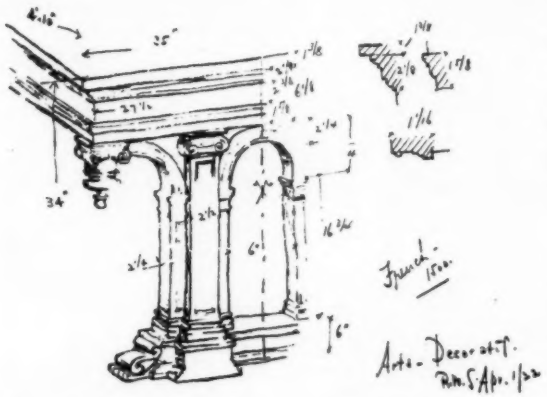
Old iron screen and gates of German design, circa 1700, sketched in the South Kensington Museum

It might be of interest to some to know that I am an architectural designer and my whole idea in making this trip was to improve my professional knowledge and ability. Consequently, I was out to see the best that was to be seen in my line, and to sketch and photograph everything that appealed to me or that I thought would be valuable to me in my designing. So I started out with sketchbooks, pencils and camera, with eyes and hands ready to work overtime, patting myself on the back that, for once in my life anyhow, I had had the courage of my convictions. My motto was to be: Stop, look and sketch. And I certainly did just that! Whatever city, town or village I came to, there was very little there that I did not see. I made it a point to walk about as much as possible, fearing that I should miss something if I went by trolley or bus. I looked everything over from top to bottom, eager to see some minute detail that would interest me. Here I sketched a door surround, there a cap of a column, and now a piece of furniture. I made a snapshot of the entire



Details of woodwork of architectural interest, made at Hampton Court

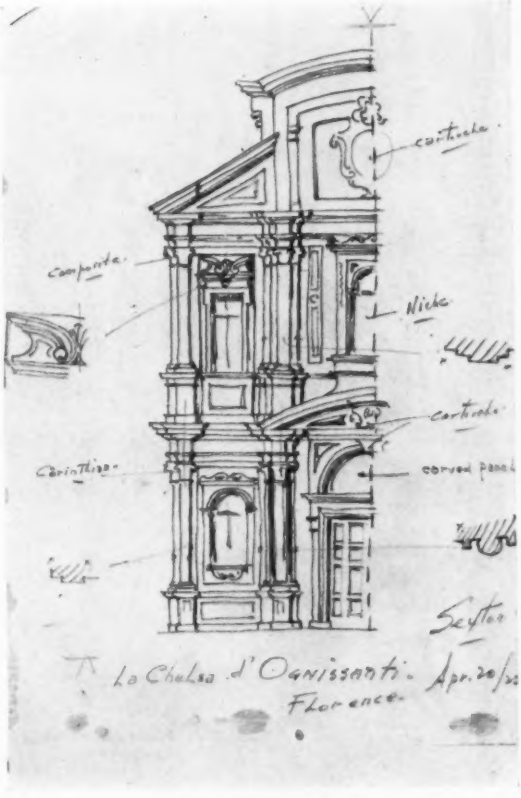
building from which I sketched a certain detail, in order to show its exact relation to the whole design, and found this to be of great help. I soon became so interested that I sketched the whole thing as well as the detail, and found myself entering on a new field of art, that of freehand perspective sketching. My business experience had not taken me far into the line of perspective sketching, except for occasional renderings of buildings and pieces of furniture made from plans



Reproduction of an original measured sketch of a table in the French style of the XVth Century, made in the Musee des Arts Decoratif, Paris

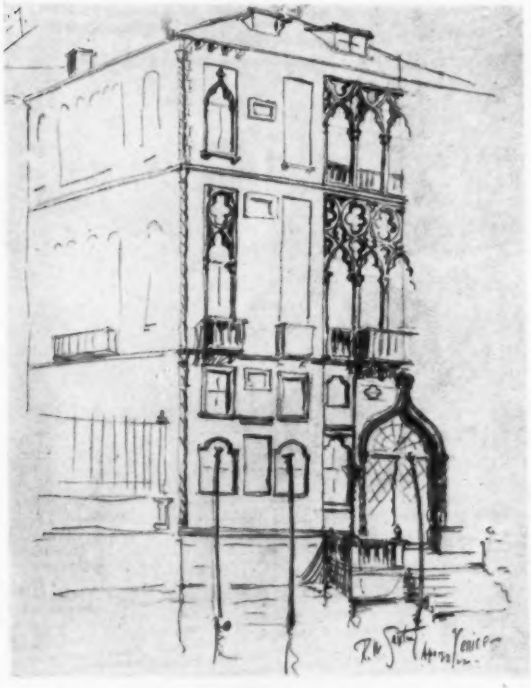
and elevations, and I was therefore all the more surprised and delighted to find that I could really make quite interesting pencil sketches. Naturally I desired to improve in this line, so kept it up all the way. I soon even appeared as one of the many wandering artists in Europe, stopping suddenly, producing my tools and setting to work on a picture. All I lacked to put me in this class was the folding camp stool. I never got as bad as that. Nor was it necessary for me to carry a folding easel, for I did all my sketching in pencil. But I always had the sketchbook on my hip pocket, and could produce it at a moment's notice. (It is not necessary to smuggle anything else in this pocket in Europe, not yet, anyhow.) By the way, I was surprised to find that wherever I went, there were always those who seem to have nothing else to do but gaze over the shoulders of sketching artists. You rather expect that over here. Artists are not as common here as there. But I thought they would be accustomed to it over there by this time. But there is a difference in the way the people watch you there. In this country, especially in New York, a crowd always gathers behind an easel. The first ones are just plain inquisitive, while a few people standing looking at something always draw a crowd in New York, and so there is soon a crowd eager to see what is going on, fearful lest they will miss something. But over there, the people look on in admiration and appreciation. You don't feel their gazes as you do here. But I must say, as a beginner, these gazers did not help me a bit.

But I am getting away from my trip. Should this story suddenly rouse some student or old timer to do what I did, it might be interesting to know just where I went, what I saw and what it cost. I landed in Liverpool, but did not linger long there, as it was not the type of place I was looking for, in fact did not look foreign. I had selected the two stopovers on my way to London before sailing, and now that I had talked with several Englishmen coming over on the steamer, found I made good selections. The first was Chester, about forty minutes out of Liverpool. Here I found a real old time city of England, built almost to a unit of the Tudor style of half timber and rich carvings. Even the very newest buildings were designed of the same style and the effect of a good sized town in variations of the same style of architecture was most interesting and worthy of careful study and consideration by our own architects today. The result is that of a large old city carefully and accurately restored, while fully half the buildings



An Elevation Sketch
La Chelsa d'Ognissanti, Florence. Notice certain details sketched at the side

are actually very modern in construction. From here I went to Warwick, noted for its famous castle, a city in contrast to Chester in that while being old, it has kept up with the times, and its architectural designs cover a wide range of styles, from the same half timber, of which there are some worthy examples, to the most modern. The contrasting element of these two towns made an interesting study. The Warwick Castle is most stately and imposing, situated as it is, on the crest of a hill, with the town extending from it in all directions. The interior contains a collection of elaborate furniture with gorgeous decorations, while the layout of the grounds and the gardens is a source of delight to the landscape architect. By auto bus I went from here to Stratford-on-Avon, and enjoyed to the utmost Shakespeare's birthplace, and Ann Hathaway's cottage. This delightful old cottage, of brick and timber, with its thatched roof, and its old-fashioned garden, set beneath sturdy big trees, made as charming a picture as I saw on my entire trip, although not perhaps so inspirational from an architectural point of view as many other things I saw. The next day I went on to London. Such places as Parliament building, Westminster Abbey, St. Paul's, British Museum, and so many others, were each worth the price of admission, and the South Kensington Museum offers as wonderful a collection from point of quality and quantity as would be possible to put under one roof. For the architect, the collection of old wrought iron and woodwork is probably most instructive, and from another point of view, the exhibition of period furniture is wonderful. Our own Metropolitan rather takes a back seat after visiting South Kensington. My pencil worked fast and furiously for two days here, and only the hopes that I would see more, just as good, as I went on, (for the actualities had greatly exceeded my expectations so far,) allowed me to leave this place. Before leaving London ,however, I took one day at Hampton Court, a half



Original "shorthand" perspective sketch of a palace on the Grand Canal, Venice. See how little detail is shown for nothing is repeated

Finished sketch of palace on Grand Canal, Venice, made after returning home

hour's ride out of the city, and feasted on the period wood panelled rooms, sketching suggestions and ideas in rapid succession. Just two weeks after my arrival in Liverpool, I took the midnight steamer from Southampton for Le Havre. I had time for one stop on my way from London to Southampton, so got off at Winchester, and spent a pleasant hour or two visiting the Cathedral and historic places in that old town.

It was not my liking for the sea that tempted me to go to France by way of this night boat, but I had three very good reasons for going that way. First, it was much cheaper than any other way; second, I lost no daylight for sightseeing, as the boat arrived at Havre at six the next morning, and third, I wished to stop at Rouen on my way to Paris. In this way I would not have to retrace my steps, as it is directly on the route to Paris, while from any other way, I would have had to make a

trip from Paris and return. And that is a good tip for tourists. Never retrace your steps! Make every step take you somewhere you have not been. That holds just as much in going about a city as in going from one city to another. For anyone interested in French Gothic architecture, both interior and exterior, a visit to the wonderful cathedrals of Rouen is enough. But, in my anxiety to get to Paris, now that I realized that I was so near, I stayed only one day and a night, and arrived at Paris at noon the next day. Aside from the many famous places, there are many just as instructive, hidden in some dark alley, seldom seen by the tourist. Easy trips can be made from Paris to Fontainebleau, Versailles and Barbizon. The palace at Fontainebleau is especially attractive to the interior architect on account of its many rooms, each in a different period of French art, with original furniture. The exterior of the building is full of suggestions for designers and a trip there should not be missed. In the palace at Versailles are also rooms decorated elaborately in various periods while the well known Grand and Petit Palais are probably the center of attraction for those architecturally inclined. For the more artistic, nothing could be more attractive than the petite houses forming what is known as the Hamlet Village. These four or five cottages are all built in miniature, and were used by Marie Antoinette and her court ladies for playing peasant life. They are designed after the half timber style of early England with thatched roofs, and, although delightful, are somewhat extreme in detail. Barbizon interests, too, on account of its connection with artists, being the rendezvous of such men as Millet, Corot, and Rousseau. The atmosphere as shown in the paintings of these men is still very discernible there.

As I mentioned before, I was taken on a trip from Paris to Florence and the remaining places I visited were made while on this tour. We went directly South from Paris through the open country, stopping at little peasant towns and villages for the night, wherever we happened to be. Before coming to the Riviera, we passed through that delightful section of old Roman France, still holding many relics and ruins of Roman times. Probably the most interesting town was Nimes, where there is an old Arena, built by the Romans in the first century, and a wonderful Roman temple, Maison Carré. The Roman gardens, still showing the original Roman baths, are very artistic and well laid out. Another stop at Avignon, for many years a noted artist resort, and we arrived at the Riviera. Anyone with an atom of artistic sense, which is surely in each of us, comes to the front as you behold the wonderful natural scenery along the coast of the Mediterranean. Beautiful buildings fade into insignificance in comparison with the beauties of this setting! Still as you come into Nice and Monte Carlo, you are pleased by the personal touch to their buildings, seeming to show a sort of Spanish influence, as our houses in California suggest. And then, as you go on, into the Italian country, the style changes again. We passed hurriedly through Genoa, hardly having time to study details, but it was easy to notice the fine detail of the ornament, peculiar to the Italian.

Flemish **English** **French**

Interesting examples of Linenfold design of XVth Century

(Sketched in the South Kensington Museum)

And then we arrived at Florence! Another city of hidden treasure! Although greeted by the Cathedral and Campanile, and the St. Maria Novella we found the real gems of architectural design "around the corner." Have you ever noticed how this adds greatly to visiting a new town? You never know what is going to appear before your eyes at the next turn. But sure that there will be something worth while, you go on and on, eager for the next turn. The museums contain beautiful collections, while the old bridge—Ponte Vecchio,—is most sought for by artists. I went from here by train to Venice, the real inspiration of my trip, and had hard work to realize that I was in the same world as New York City, and not in a dream, as I glided peacefully along the Grand Canal, lined on both sides with palaces in the rich, refined Venetian style, and was brought in full view of the magnificent St. Marco. It was a building built of jewels! The panels over the doors sparkled in bright mosaic, and the domes above shone in blazing gold! The realization of my inspiration!

On my way back to Paris I stopped off at Verona, Italy, Lausanne, Switzerland, and Dijon, France. These places only increased by knowledge and made me more satisfied with my trip and myself, and I was back again for a couple of months more in Paris, to continue my tutoring. So I saw quite a bit of the world! Would you believe it if I told you that you could take that trip for $600? Few people have believed me since I came back, so here it is in black and white. Although I went from Paris to Florence by auto, I have included the price for that by rail.

New York to Liverpool	$130.00	
Railway fare, Liverpool to London	6.55	
Hotels, Chester one night	1.50	
Warwick, two nights	5.00	
London, eight nights, @ 6 shill.	10.80	
Meals, 12 days @ 1.50 per day	18.00	
Railway fare London to Paris Inc. Steamer	8.25	
Sundries, laundry, tips, fares, etc.	10.00	
New York to Paris		190.10
Paris, Room, three months @ 150 francs		45.00
Meals, three months @ 1.00 per day (10 francs)		100.00
Sundries		50.00
Trip to Italy and return		
Fare Paris to Florence		20.00
Florence to Venice		4.25
Venice to Paris		18.80
Rooms. Florence, two nights		2.00
Venice, two nights		1.80
Verona, one night and two meals		2.29
Lausanne, one night		1.75
Dijon, one night		2.40
Extra meals		6.00
Sundries		10.00
Paris to New York		130.00
Extras		15.00
Grand total,		$599.39

And now a word about sketching. Did you ever do any freehand sketching? Perhaps I could give you a tip or two, which I got from my experience. I made three distinct types of sketches. First, details; second, elevations; and third, perspectives. A detail sketch was a rather careful drawing of some part of a building, something in the decorative scheme of a room, or part of a piece of furniture. Sometimes this was a door surround, again an arrangement of panels, and, perhaps, a leg of a chair. An elevation sketch was made when the whole subject appealed to me. Very often I would sketch in this way the entire building from which I had just sketched one or two details, to show their setting. I also sometimes made snapshots of this. The perspective sketch was a picture or composition, and was the line of sketching which I attempted for the first time on this trip. All of my original sketches were in line only,—shadows often cover up details and can always be added to look natural. The most intricate of my sketches never took more than twenty minutes,—sort of "shorthand sketching,"—I took measurements where possible and helpful, and took as few details as necessary to give me the facts. In elevations, half of the building was often all that was necessary. A pilaster once sketched was sufficient for the whole group. Often a ground plan of some arrangement was enough for my purpose. But the most important is to understand your own sketch. I could sit down now and make a finished perspective or elevation drawing of everything in my sketchbook. It is worth much to me, nothing probably to you. Why don't you make your own sketchbook?

Billiard Room, Marshcourt, England
Sir Edwin L. Lutyens, R. A., Architect
(Courtesy of Country Life, London)

DAYLIGHT *in* BUILDINGS—PART II*

BY PERCY E. NOBBS, M. A.

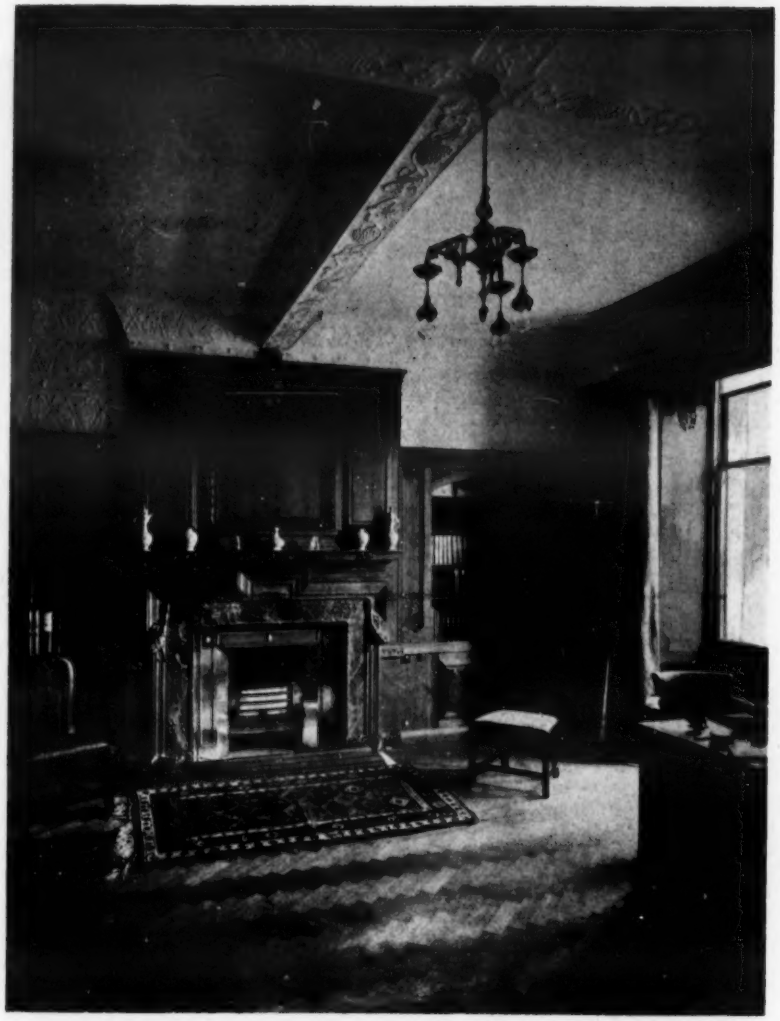
THE paintings of the old Dutchmen deal largely with the appearances of plain things in careful combination under judicious illumination. These highly valued paintings are after all merely somewhat stilted representations of the ordinary environment of cultured Dutchmen in the seventeenth century. Such actual interiors exist today, in diminished numbers, but as exquisitely as ever they did in Peter de Hooch's time and if his paintings are indeed, as is averred, masterpieces of art, it seems reasonable to infer that the men who assembled these effects out of the apparatus of their lives and whose names and fames are lost, were greater artists far than he. It is unnecessary to say more on the quarrel between the originators and the representators of such aesthetic phenomena than to remark that an interior is often conceived and composed, even in modern times with as much ease of composition in light and shade as ever Fantin Latour lavished on a still life study.

One is tempted, however, to believe that in those periods of debased architecture—the sixteenth and seventeenth centuries—a most loving attention was generally bestowed on these matters. Undoubtedly architectural composition was then more elastic than the taste of later generations admitted; but which was cause and which effect, who shall say? In the cases of the great churches of the later phases of the Gothic cycle in France and the great houses of Tudor, England, the art of interior design was a matter of planning voids and solids so that lights and shades might best reveal the sumptuous simplicities within.

Bays and deep embrasures besides masking the sources of light are of great value in causing diffusion. The long gallery at Haddon Hall and the nave of the church at Fiesole are instances. In the latter there is abundance of light notwithstand-

*This is the second of two articles by Mr. Nobbs. The first appeared in our issue of July 4.

A drawing room, Edinburgh, Scotland
Sir Robert Lorimer, R. S. A., Architect
(Photo by Milliken, Kircaldy)



Business Room, Hallyburton House, Coupar Angus, Scotland
Sir Robert Lorimer, R. S. A., Architect
(Photo by Milliken, Kircaldy)

ing the tiny openings—mere slots in the clerestory walls—and the latitude is that of Rhode Island. In the former the bays are large, the glass area generous, the climate dull and the latitude that of Edmonton, Alberta.

The placing of a window close to a cross, or end wall of a room is habitual with the pre- and post-Renaissance Dutchmen, and the modern Germans delight in the practice to this day. The

Holy Trinity Church, Kensington, England
The late Messrs. Bodley & Garner, Architects
(Photo by Ellis, London)

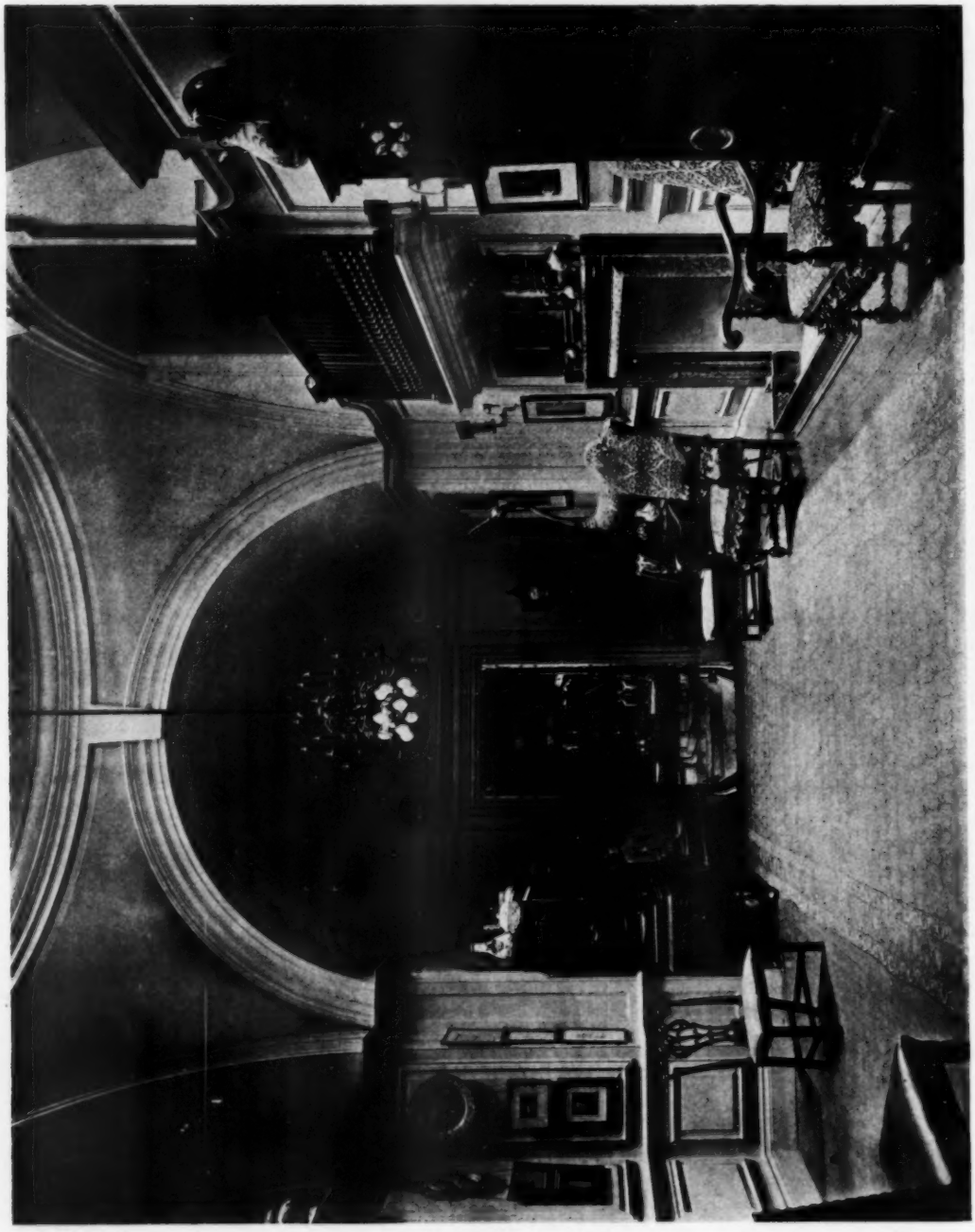
end wall is thus sharply illumined and diffuses light well into the room while everything connected with the wall so lit stands out in keen but delicate relief. Such effects are inevitably sacrificed when every room consists of one or more unit bays of a main fabric, each endowed with a window on its center with a patch of blank shaded wall on each side of it.

The most potent means of enchantment, however, is the variation of the quality of light between the eye and the object, and the light may be varied in actual color as well as in strength, or diffused volume. By taking thought in this matter many cubits may be added to the apparent length of a nave or gallery. A tower occurring at the crossing may be used as a lantern to flood a rood and screen with light, or by its shaded vault to interrupt the clerestory diffusion. Clerestory lighting itself is readily variable as between nave and chancel either way. Or again cross lighting may be introduced continuously through aisles or abruptly from a transept. The degree upon which lantern or clerestory lighting is relied on should affect all details of form, a matter often ignored. Deflected lights from paved areas are often left to chance sometimes with unfortunate results. Intermediate objects are greatly affected by their backgrounds. A screen may be silhouetted in relation to the illumined end wall without necessarily depriving it of all light and shade to reveal its detail.

The contrivance of these and such other effects as may be appropriate to the sentiment desired is, after all, the main business of design in its æsthetic aspect, in so far as interiors are involved. Trusting to luck may bring occasional successes beyond contrivance, but for the most part leads to dullness and wastage of form,—defects which are characteristic of modern interiors.

Top lighting has its own peculiar charms due to diffusion within the lantern space and a gentle downward diminution on wall surfaces with accents of light on horizontal objects. The Dutchmen were sensitive to this and often widened the upper portions of their windows as a compromise between real top lighting and side lighting with the happiest results. Also by carrying the glass as near the ceiling as construction would permit

Church of the Cowley Fathers, Oxford, England
The late Messrs. Bodley & Garner, Architects
(Photo by Ellis, London)



TOP LIT ROOM AT 120 QUEEN'S GATE, LONDON
THE LATE R. NORMAN SHAW, R. A., ARCHITECT
(Courtesy of H. Muthesius, Berlin)

they contrived a diffusion of light percolating the shadows; this is artifice—æsthetic technique.

A very vulgar error in modern church design is the blinding of the worshippers with a large window in their faces. An East window which might with staining to the likeness of "the tiger moth's deep damasked wing" be tolerable in the mild light of Ely or Rouen becomes an unmitigated nuisance if of bright glass in Toronto or Philadelphia. The late Mr. Bodley delighted in tall dossals of gorgeous fabric and occasionally did away with his East window altogether, or else kept it high up and heavily toned. A large South window admitting a flood of cross light toward the end of the morning service (as at St. Agnes, Kensington, by the late John Aldred Scott) goes far to mitigate the asperity of East end lighting, besides suffusing the service with a benign radiance.

If we have illustrated these points largely from the work of the piper stages of the Gothic Revival and if we have drawn attention to the importance attaching to considerations of internal illumination at the end of the mediæval period it is not our intention to hold a brief for the modern use of mediæval construction and the forms resulting therefrom. On the contrary, we feel most strongly that the repetition, or worse still the simulation of dead detail serves no purpose other than to obscure the still live principles of every great tradition of the past. The co-ordinated arrangement of light and shade so that the interior of a structure may be seen pleasantly is never incompatible with a structural arrangement worth looking at. Six thousand years of architecture from China to California Westward show that.

The Landing, Nashdown, Taplow, England

Sir Edwin L. Lutyens, R. A., Architect

(Courtesy of Country Life, London)

But one may value the Revival of Gothic during the last century chiefly for its recovery and conservation of the technique of arranging windows and internal structure in happy relation, even if this appreciation renders the violation of "Gothic principle" in the revived cusp and the revived crocket the more incomprehensible. An identical pedantry inspired the Greek detail of Stuart and Cockerell.

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When Mr. E. S. Prior hurled his barbed phrase "the tinsel of modern ecclesiology" at the Angelican architects, he should have qualified the gibe by some recognition of the fundamental qualities of their art,—a synthesis of purpose translated into space, of material translated into form, of illumination translated into spirit. In the last resort all architecture is planning and good architecture is planning to make things worth seeing visible.

Let us turn from the temples of the gods with their glittering altars, filigreed screeds, and glowing windows to consider a very practical application of the matter under discussion to the home of the worker. Cottage planning as understood in connection with the housing schemes of Germany and England is characterized by a careful placing of windows in relation to the uses of rooms in comparison with which American efforts in a parallel field are somewhat inept. Regularity of fenestration has its use but not in a cottage in which every square foot of floor area has to be made the most of. Indeed, in very small work the middle of the side of a room is hardly ever the best place for a window. Now American design-

Dining room, house of R. Norman Shaw, R. A., Hampstead, England

(Courtesy of A. C. Armstrong & Son)

Church of St. Mary, Clumber, England
The late Messrs. Bodley & Garner, Architects
(From Modern English Churches)

The Thistle Chapel, Edinburgh, Scotland
Sir Robert Lorimer, R. S. A., Architect
(From Modern English Churches)

DRAWING ROOM, HYNDFORD HOUSE, NORTH BERWICK, SCOTLAND

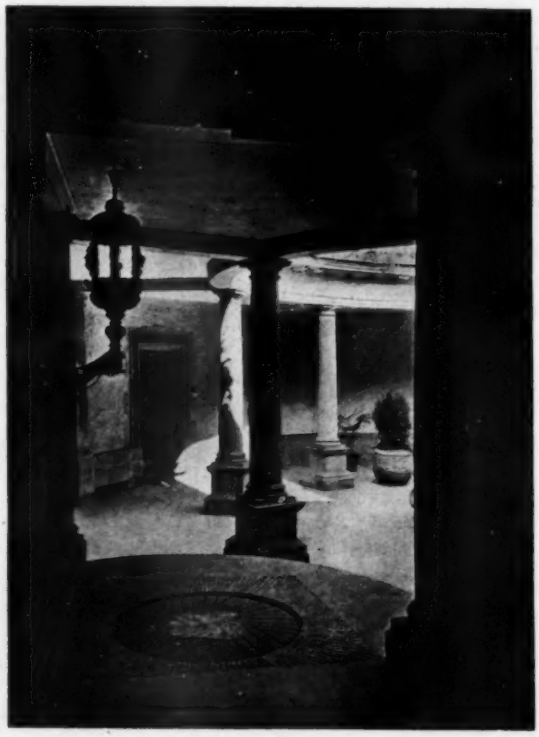
SIR ROBERT LORIMER, R. S. A., ARCHITECT

(Photo by Milliken, Kircaldy)

ers of cottage housing are wont to disfigure their plans and distort their thinking with a plethora of axial lines. These may on occasion serve a purely professional end in distracting attention from questions of furnishing or comfort—prerequisites of internal pleasantness. Sometimes these ubiquitous axial lines seem intended as a sign manual and general advertisement of an academic training. Yet again they are a mere decoration, the surplus energy of the rejoicing pen, the origin of which, like that of so many architectural nuances, is lost in antiquity.

Where a higher scale of accommodation is involved there is, of course, a real character in regularity. A comparison between the house planning of Sir Robert Lorimer and of Mr. Platt would be an odious thing. They try for different aims and each is master of his methods. Mr. Platt's plans result incidentally in the form of exquisite patterns; on paper they are as enjoyable and more suggestive than in being, at least to those who read plans. Beside them Lorimer's planning on paper is at first sight uncouth. But there is nothing maladroit about it, for none knows better than he the fine art of living in a house. The insides of Lorimer's houses, with the contents are carefully composed and cunningly lit, —still life studies, if you will, but completely comfortable still life within the limitations and austerities of the Scottish climate. One has moods in which becoming a part of an enchanted Lorimerian environment has its allurements, and then again one may have those hypercivilized moments when nothing less gracefully formal than a Plattian messuage and premises seem worth the trouble of living in.

These two ideals meet midway without sacrifice of fundamentals in much of the planning of the late Norman Shaw and oddly enough by the accident of a name and a temperament in the work still being done by Howard Shaw.



Basin Court

Papillon Hall

England

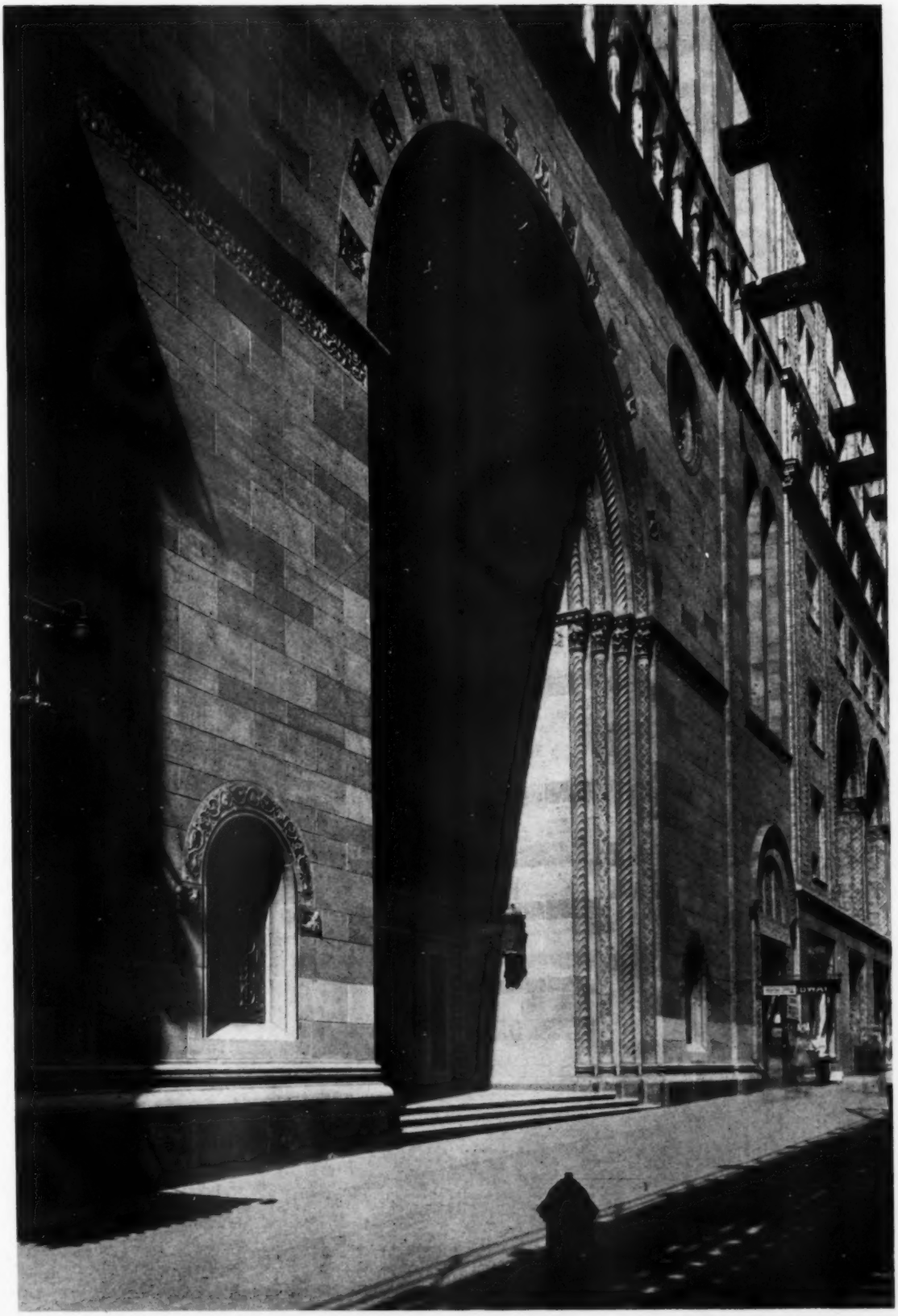
Sir Edwin L. Lutyens, R.A., Architect

(Photo by Courtesy of Country Life, London)

EXTERIOR DETAILS OF BUILDING FOR THE BOWERY SAVINGS BANK, EAST 42ND STREET, NEW YORK

YORK & SAWYER, ARCHITECTS

XUM



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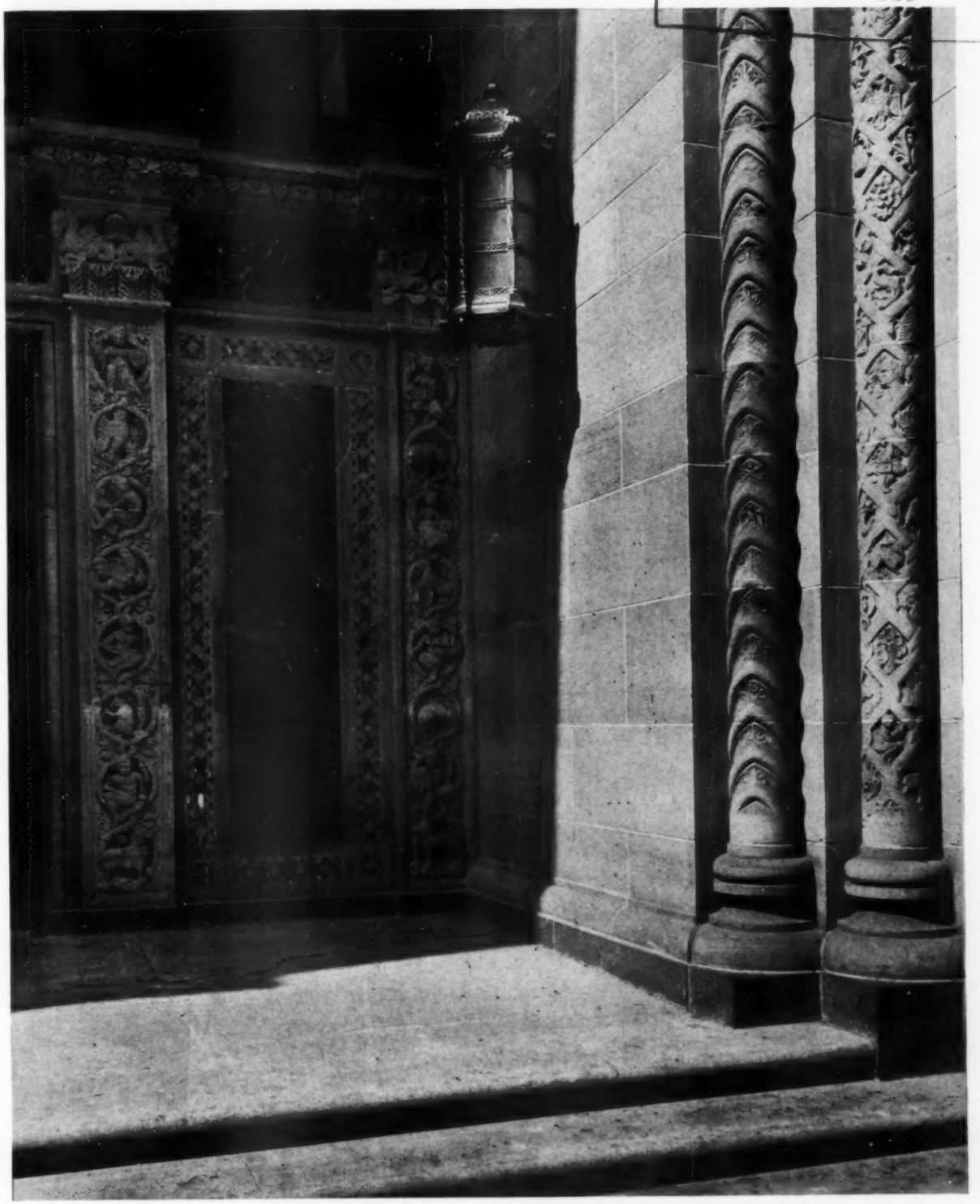
YORK & SAWYER, ARCHITECTS

XUM

EXTERIOR DETAILS OF BUILDING FOR THE BOWERY SAVINGS BANK, EAST 42ND STREET, NEW YORK

YORK & SAWYER, ARCHITECTS

THE DETROIT EDISON CO.
AUG 4 1923



EXTERIOR DETAILS OF BUILDING FOR THE BOWERY SAVINGS BANK, EAST 42ND STREET, NEW YORK

YORK & SAWYER, ARCHITECTS

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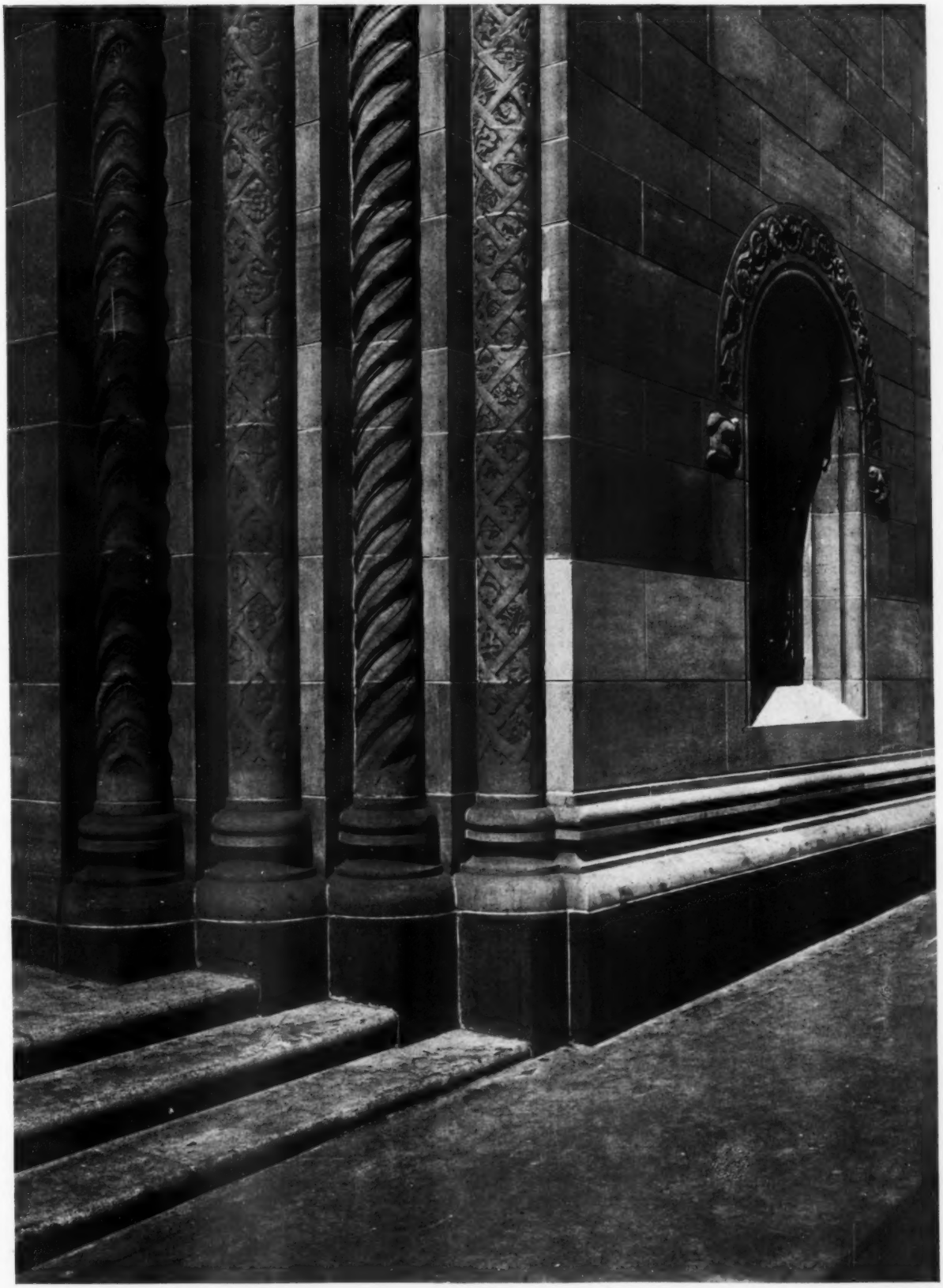

EXTERIOR DETAILS OF BUILDING FOR THE BOWERY SAVINGS BANK, EAST 42ND STREET, NEW YORK

YORK & SAWYER, ARCHITECTS

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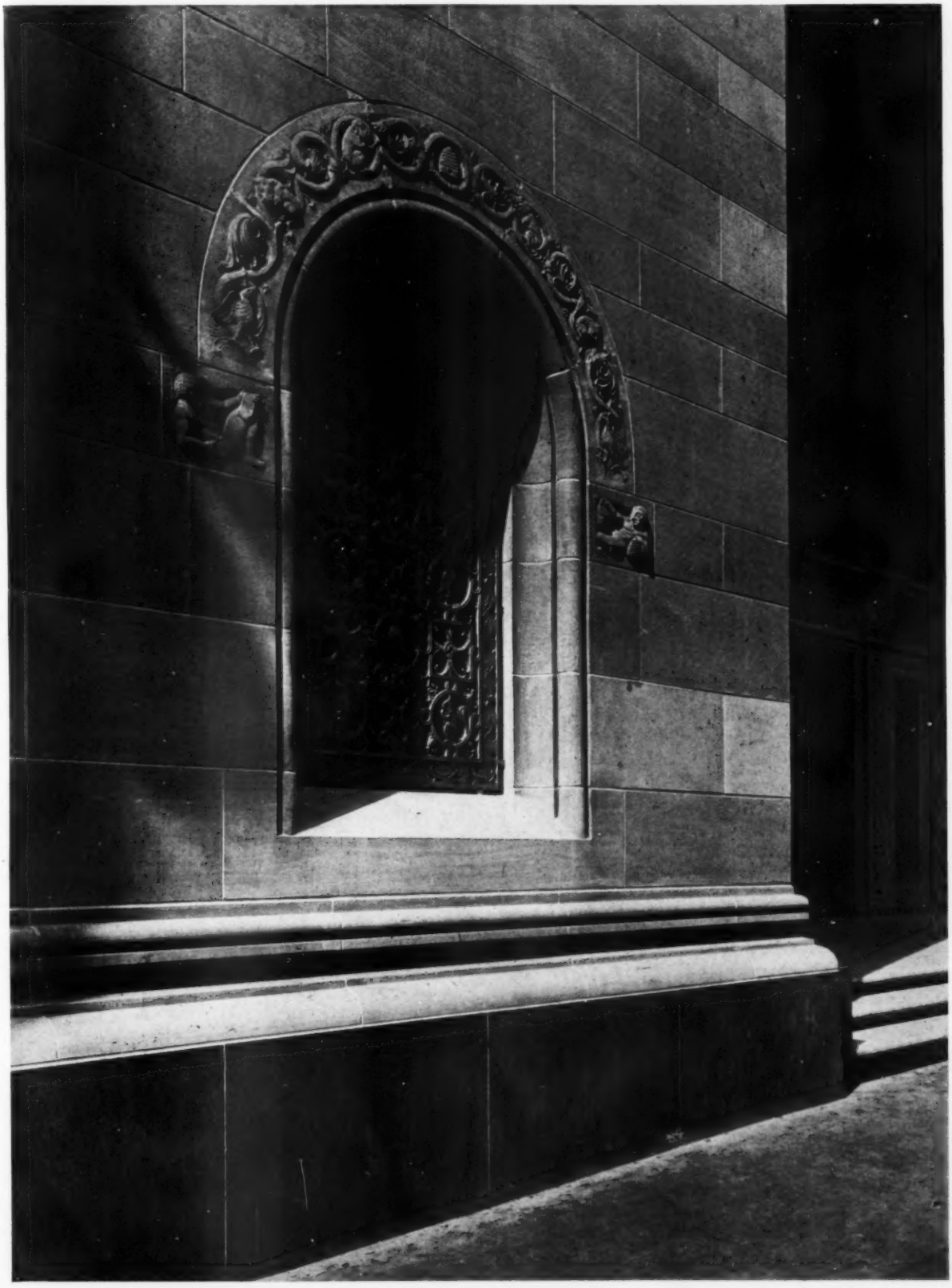

EXTERIOR DETAILS OF BUILDING FOR THE BOWERY SAVINGS BANK, EAST 42ND STREET, NEW YORK

YORK & SAWYER, ARCHITECTS

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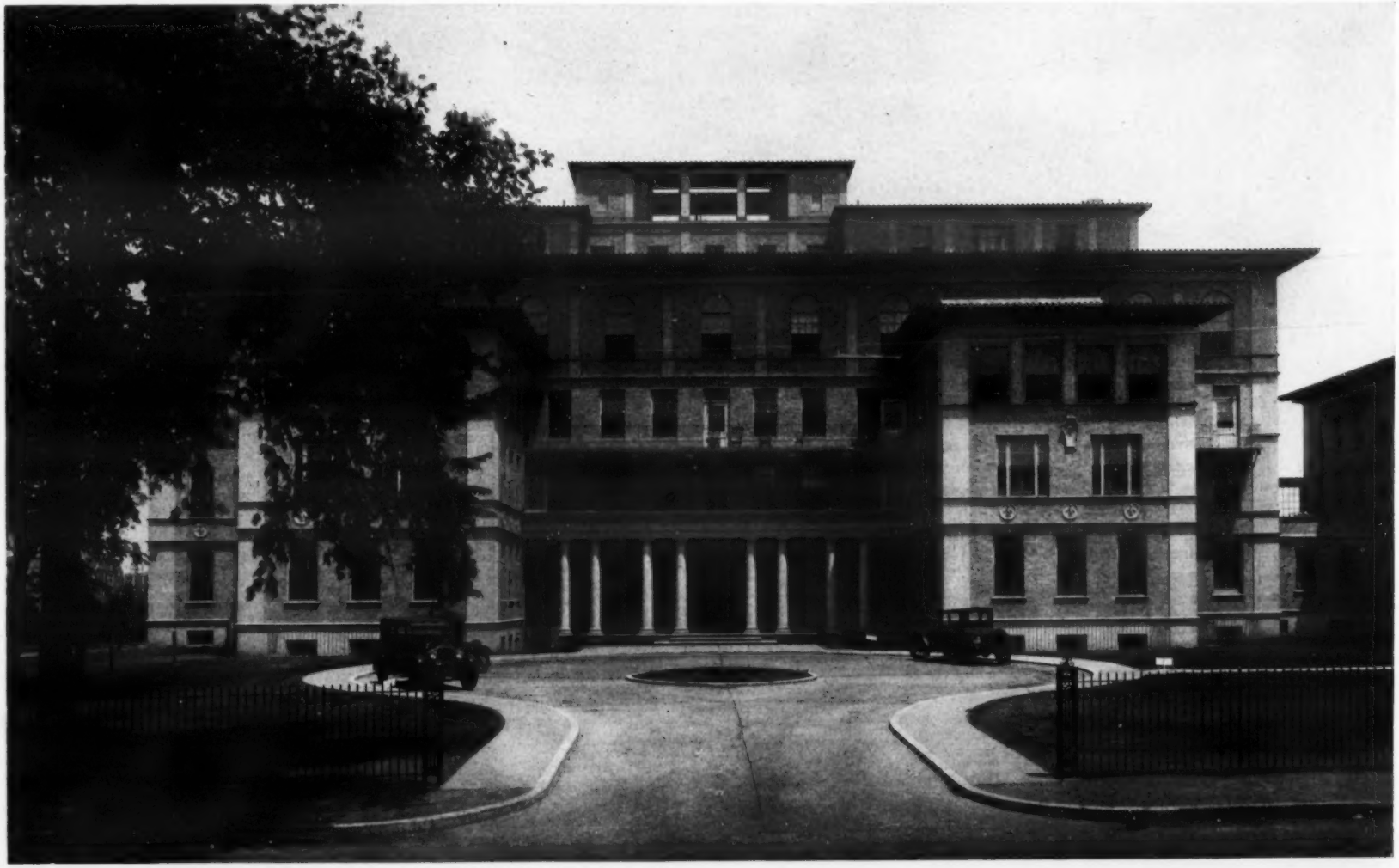


BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

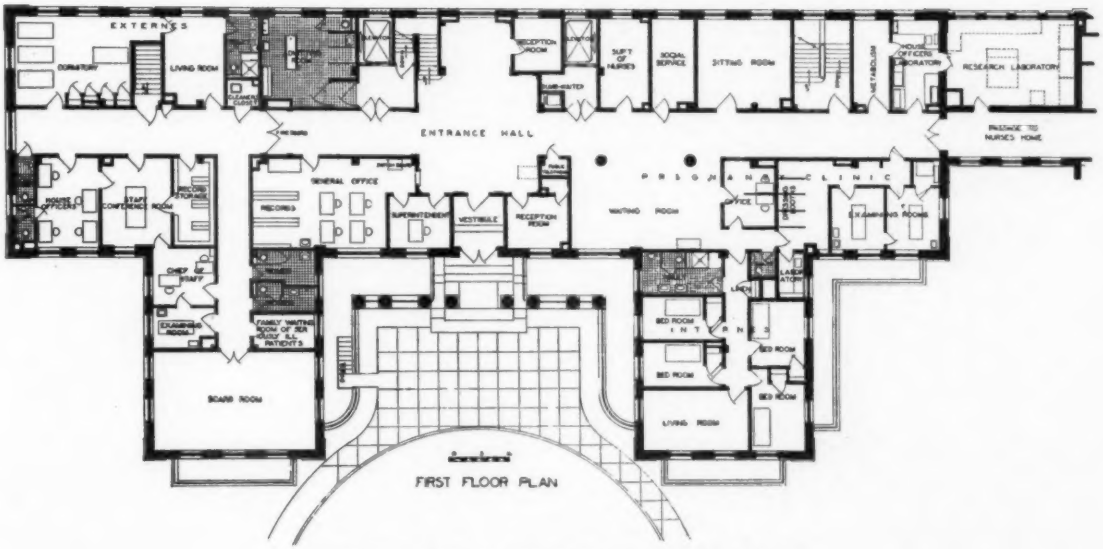
COOLIDGE & SHATTUCK, ARCHITECTS

BOARD ROOM

BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

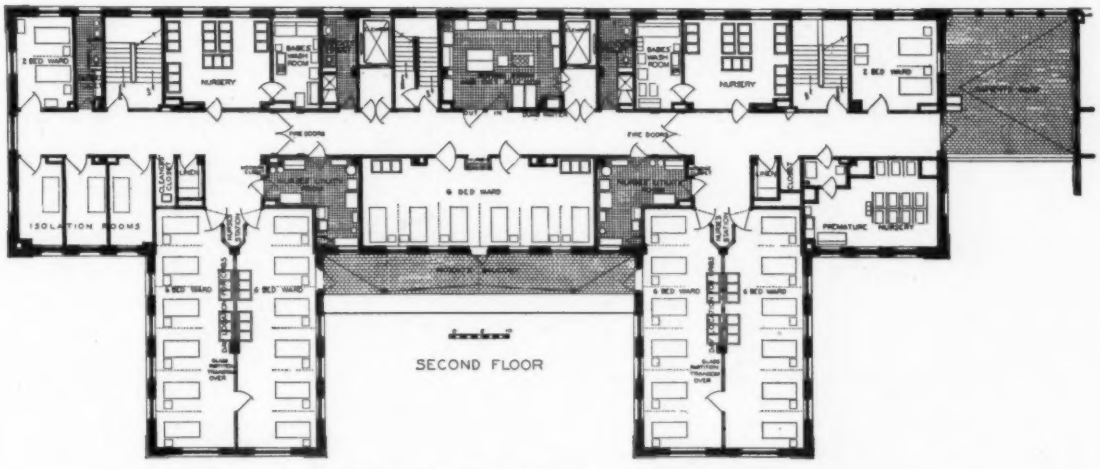
ENTRANCE LOBBY



BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

NURSES' PARLOR

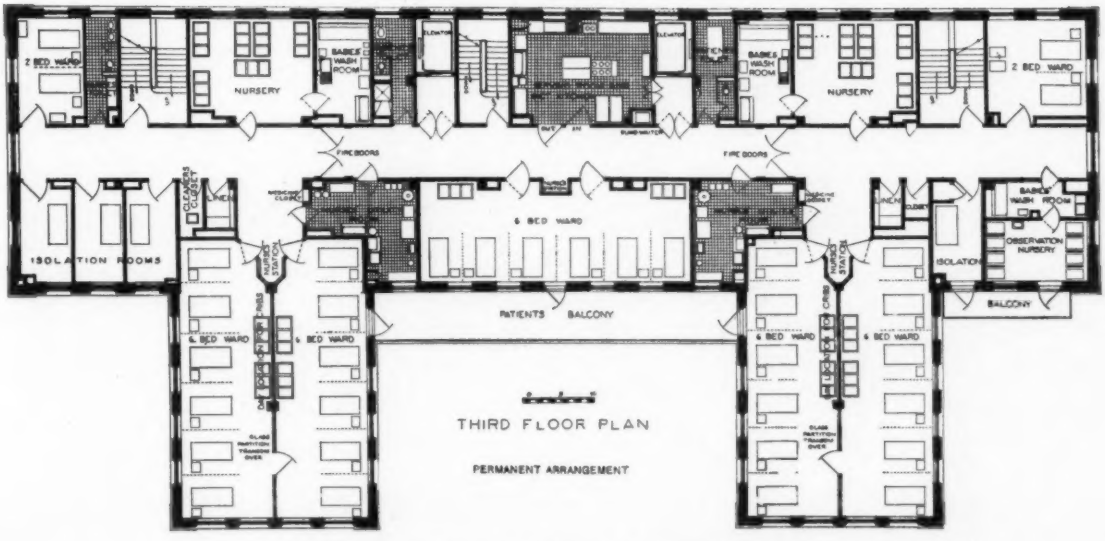


BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

XUM

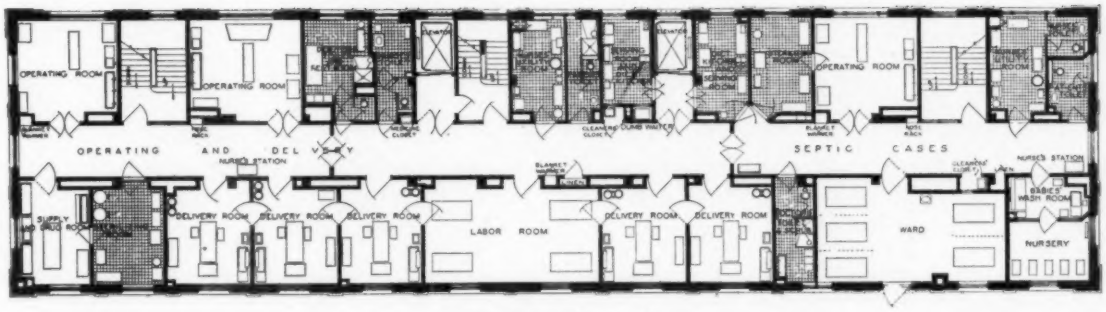
CUBICLE WARD, THIRD FLOOR



BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

OPERATING ROOM, WITH NEW "DAYLIGHTING"

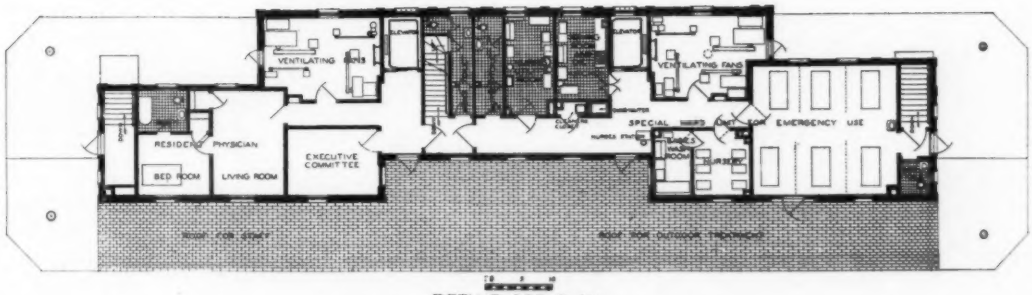


FOURTH FLOOR PLAN

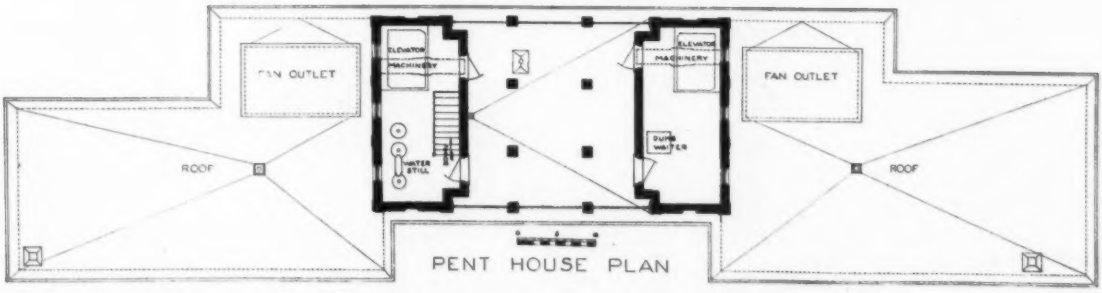
BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

REAR VIEW



FIFTH FLOOR PLAN



PENT HOUSE PLAN

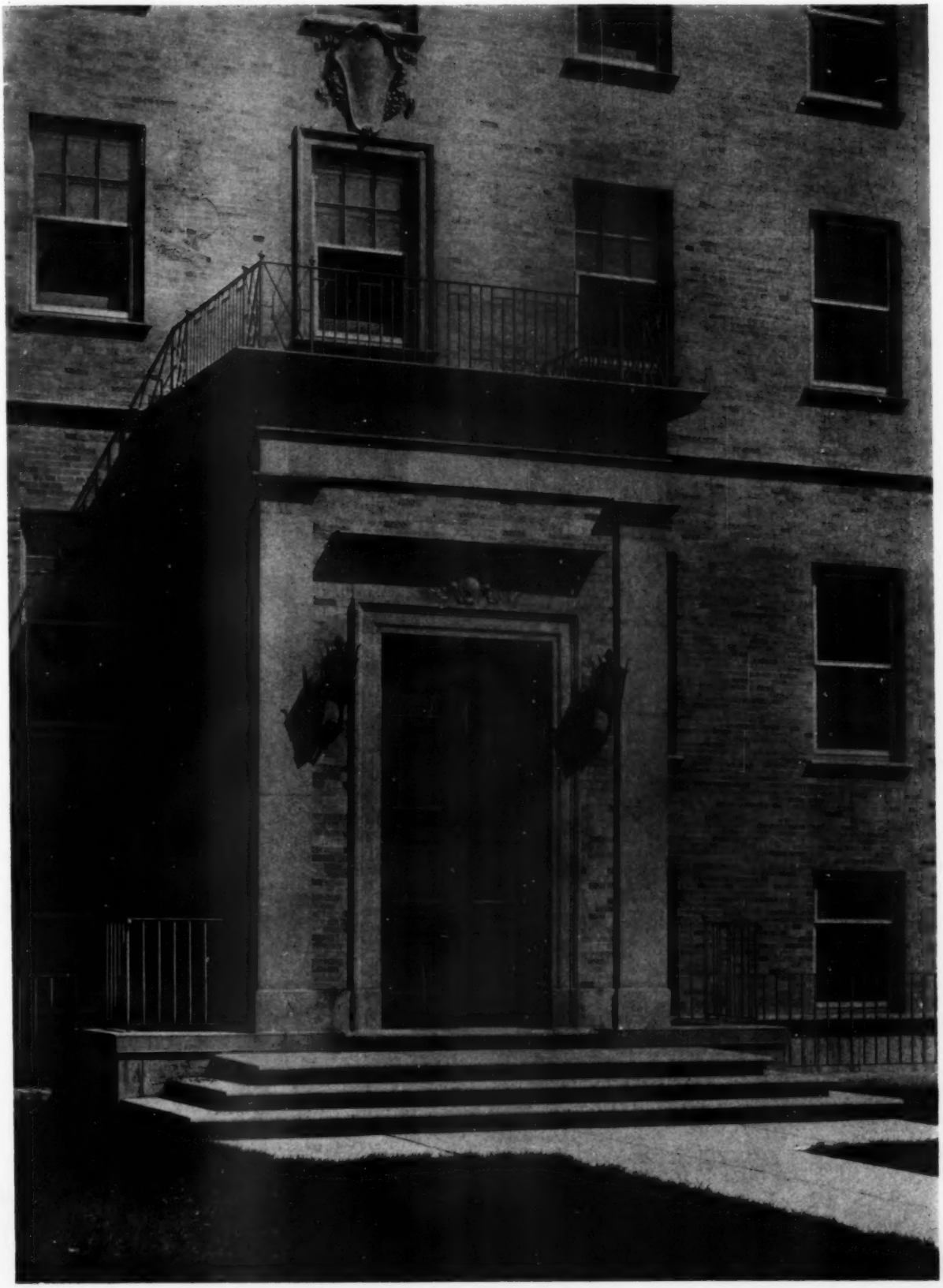
BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

XUM

NURSES' HOME, BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS



ENTRANCE DETAIL

NURSES' HOME, BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

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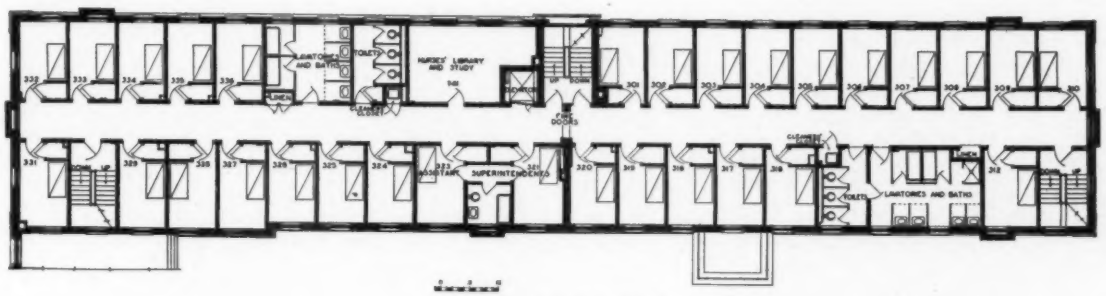
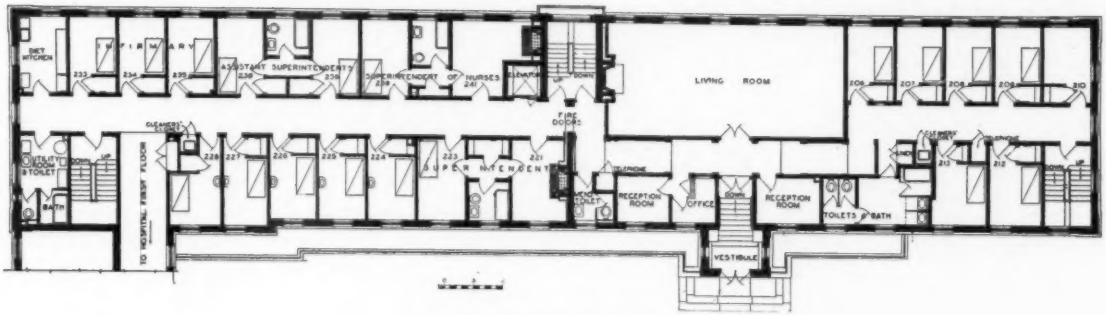
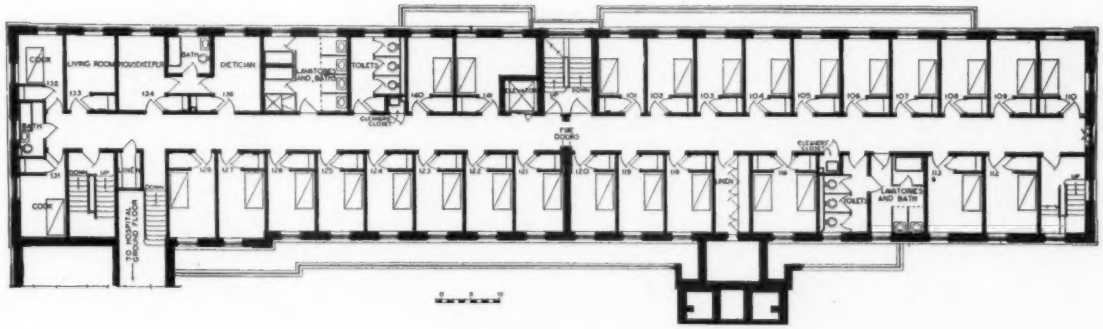


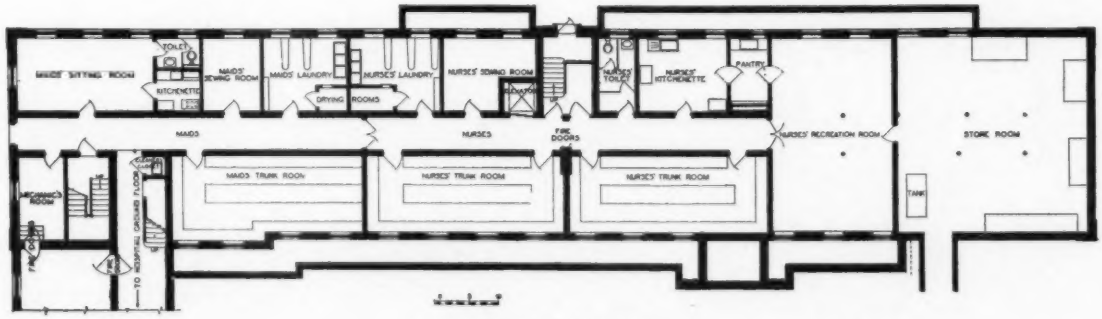
THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN



BASEMENT FLOOR PLAN

NURSES' HOME, BOSTON LYING-IN HOSPITAL, BOSTON, MASS.

COOLIDGE & SHATTUCK, ARCHITECTS

LIBRARY
THE DETROIT EDISON CO.

THREE SKETCHES *for a* PROPOSED CHURCH, FROM *the* OFFICE *of* JOHN RUSSELL POPE, ARCHITECTS

(Reproduced from the original drawings by Otto R. Eggers)

THE above and the following two drawings were specially made as suggestions for one site, incorporating the same requirements, but presenting an opportunity to compare various styles that would fit the same location.

These designs were made for the guidance and selection of the building committee of a Presbyterian Church at Larchmont.

The designs are all practical, in the sense that they are not merely "pretty pictures" to attract a client, but suggestions for an actual building based on rigid economy of construction and the best architectural expression.

IN the illustration of an apartment house in the Borough of the Bronx, we have excellent proof that a building to compete with existing poorly designed and planned structures, need not follow a sordid or commonplace example.

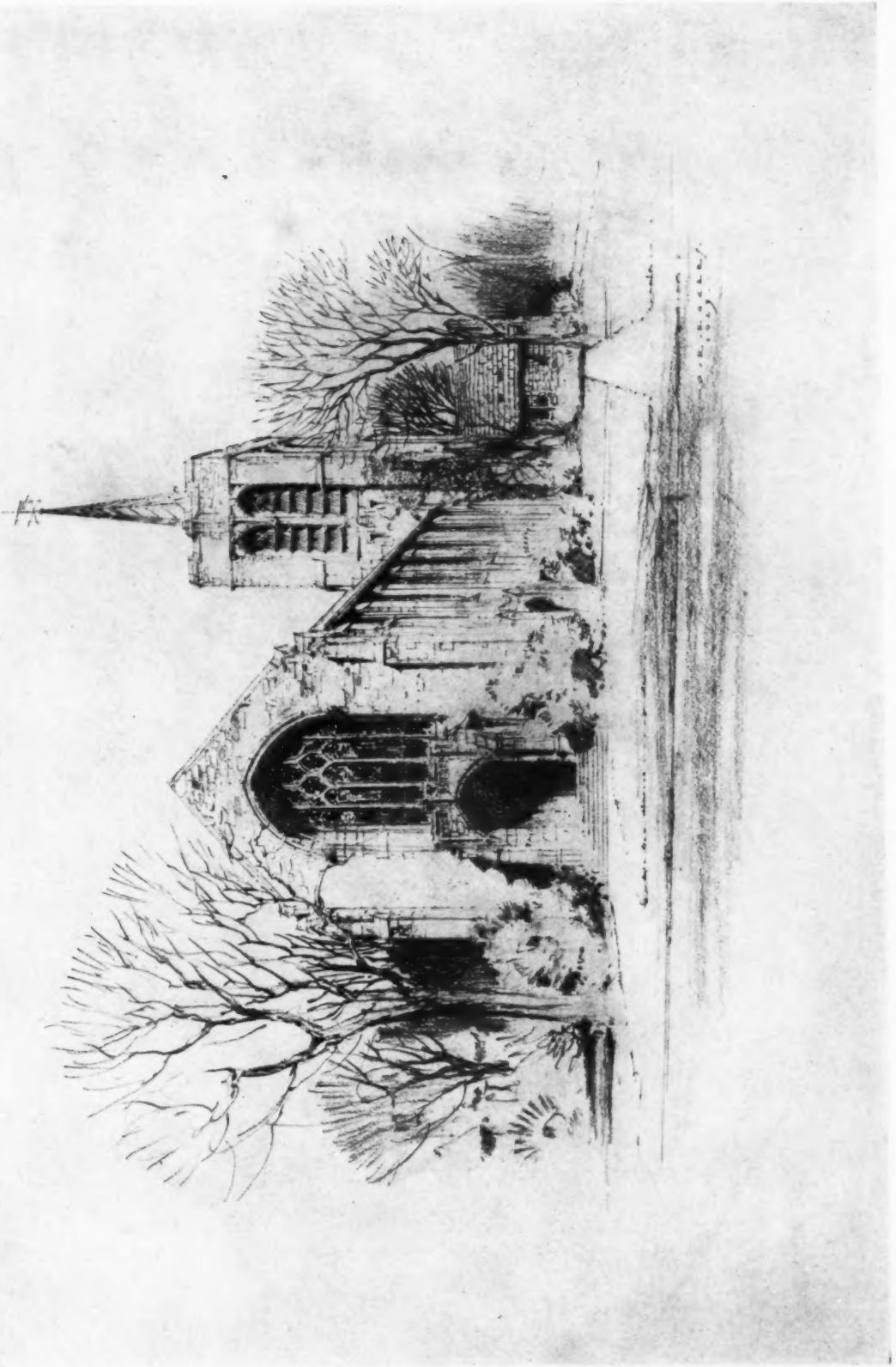
The clients proposing this venture desired a structure that would present a due regard for good architecture and would in addition be a desirable commercial venture.

This group has been carefully checked as to plan as relating to income, as compared with cost of construction. The whole scheme, as outlined, is a lesson of efficiency in art.

The brick to be used is practically discarded brick. Its availability for purposes both artistic and practical has been demonstrated by use in houses designed and executed by Mr. Pope's office and illustrated in THE AMERICAN ARCHITECT. The general composition of the design is such that the usual misapplied ornaments are eliminated and their cost saved.

XUM

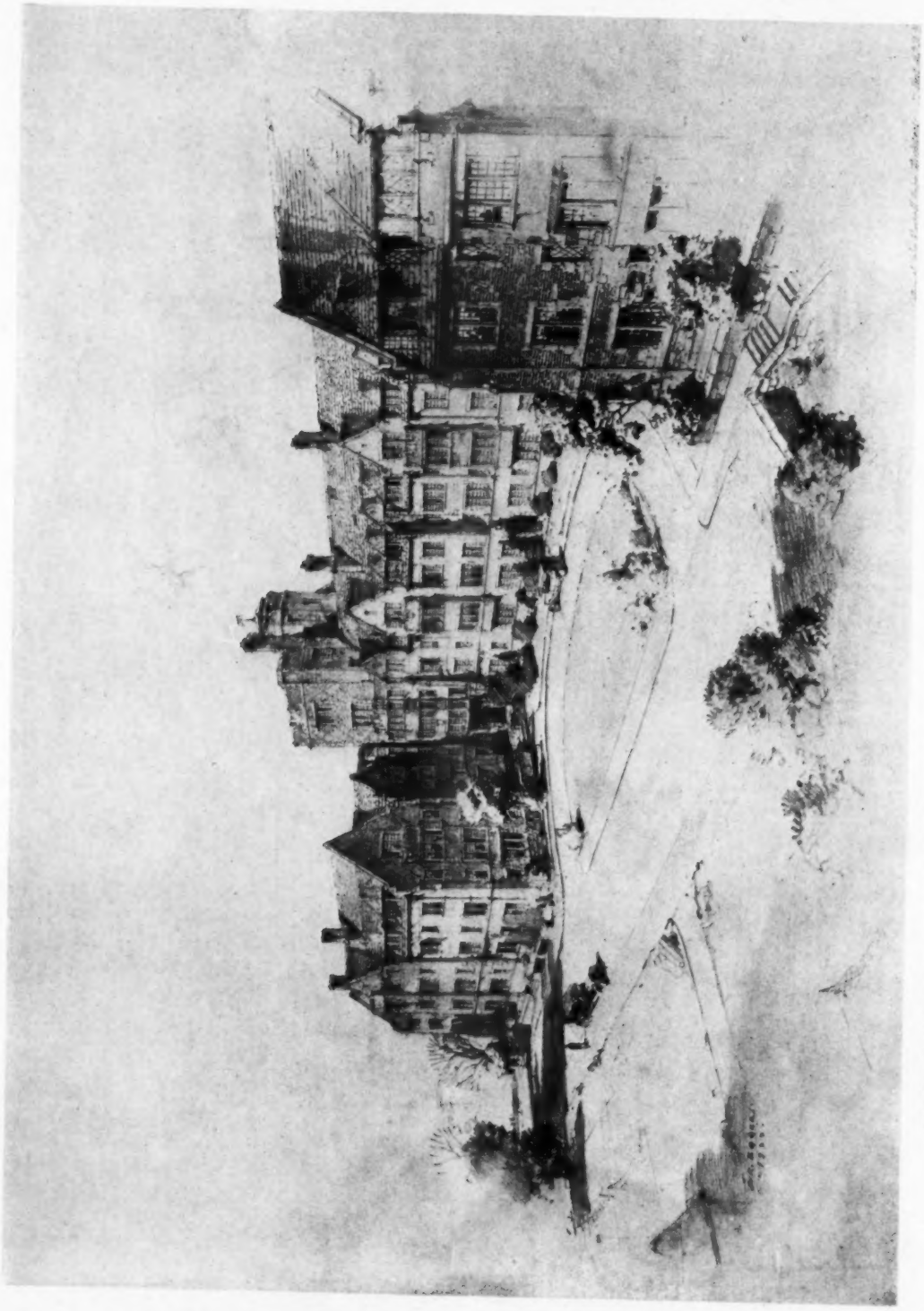
SUBMITTED DESIGN FOR A PROPOSED CHURCH
OFFICE OF JOHN RUSSELL POPE, ARCHITECTS



SUBMITTED DESIGN FOR A PROPOSED CHURCH
OFFICE OF JOHN RUSSELL POPE, ARCHITECTS
(Reproduced from the original sketch by Otto R. Eggers)

SUBMITTED DESIGN FOR A PROPOSED CHURCH
OFFICE OF JOHN RUSSELL POPE, ARCHITECTS

XUM



SUBMITTED DESIGN FOR AN APARTMENT HOUSE IN THE BOROUGH OF THE BRONX, NEW YORK
OFFICE OF JOHN RUSSELL POPE, ARCHITECTS
(Reproduced from the original sketch by Otto R. Eggers)
(See note on page 107)

BEAUX-ARTS INSTITUTE *of* DESIGN

ACTING DIRECTOR OF THE INSTITUTE—WHITNEY WARREN
ARCHITECTURE, RAYMOND M. HOOD, DIRECTOR—SCULPTURE, JOHN GREGORY, DIRECTOR
INTERIOR DECORATION—ERNEST F. TYLER, DIRECTOR
MURAL PAINTING—ERNEST C. PEIXOTTO, DIRECTOR

Special Notice to Students

BY special arrangement with the Society of Beaux-Arts Architects, there appears in each issue of THE AMERICAN ARCHITECT *an average of five pages devoted to the presentation of drawings selected from the Beaux-Arts Institute of Design exhibitions, and also the listing of awards and the promulgation of all notices to students. These matters will be exclusively presented to students of the Beaux-Arts Institute of Design through the pages of* THE AMERICAN ARCHITECT. *By arrangement with the publishers of* THE AMERICAN ARCHITECT, *a special student subscription rate of* $5.00 *per annum has been secured. Further particulars with reference to this service to Beaux-Arts students may be obtained by addressing* THE AMERICAN ARCHITECT, *243 West 39th Street, New York City.*

JUDGMENT OF MAY 22, 1923

THE KARNAK TEMPLE CHAPTER OF THE SCARAB FRATERNITY PRIZE COMPETITION

The gift of the Karnak Temple Chapter of the Scarab Fraternity, offered for the best solution of the Fifth Class "B" Esquisse-Esquisse of the season.

PRIZE $50.00

CLASS "B"—V ESQUISSE-ESQUISSE

"A VASE"

At the top of a wide flight of steps leading up to a great public building, space has been left on either side for placing of a vase of heroic size. These monumental vases are to stand on low bases and each entire motive shall not exceed 6 ft. square on the ground and 12 ft. in height.

The material may be stone, marble, metal, or a combination of these, but the character of the design should be appropriate to the medium in which it is to be executed. While the form suggested is that of a vase, such a form has been treated in the past with great freedom; garlands, reliefs or full figures being worked in with it to give architectural solidity to the mass.

CLASS "A" AND "B" ARCHÆOLOGY—V PROJET
"AN ENGLISH 18th CENTURY PUMP ROOM"

The Pump Room and its dependencies constitute the portion of a hydrothermal establishment where the mineral spring water is drawn and consumed. The subject lends itself to a variety of treatments, such as those embodied in the numerous "Casinos" and "Kursaals" of Continental Europe, as well as the buildings erected in America for this purpose.

A famous example, situated in the Southwestern portion of England, is the Pump Room at Bath, which during the 18th Century became a fashionable meeting place for prominent people of the day. Thus the problem developed from a simple shelter in which the waters were drunk, to an assembly room of more or less monumental character.

Such a pump room is the subject of this problem.

The room itself, which shall not exceed 100′-0″ in any dimension, is situated in the wing of a building, or in a separate building connected with others only by means of open arcades. One side of the room has windows and a central door opening on a street. The opposite side has windows or glazed doors giving access to a terrace or balcony which overlooks a pool of water in a park.

The ends of the room should be made to communicate with spacious vestibules which contain coat rooms, doors leading to the arcades, and stairs communicating with the lower level of the park. Near the center of the room and arranged in such a manner as to permit free circulation, are the counters, over which the water is served by attendants.

The student is reminded that the character of 18th century architecture in England is dignified and formal, but over-elaboration of ornament is neither necessary nor desirable in a place of public assembly such as the Pump Room.

THE EMERSON PRIZE

The gift of Professor William Emerson, offered for the best solution of a decorative problem.

PRIZE $50.00

"THE BASE OF A FLAG STAFF"

As a special feature of interest on a prominence in a public park, it has been decided to erect a Flag Staff. There will probably be steps and ramps leading to the terrace on which this Flag Staff rests, but these do not concern the subject of our problem beyond indicating the importance attached to it.

The Flag Pole will measure one hundred (100) feet in height, and has a diameter at its base of twenty-four (24) inches.

The decorative supporting base that is the subject of this competition measures ten (10) feet in its greatest dimension in plan. Any combination of stone or metal may be utilized.

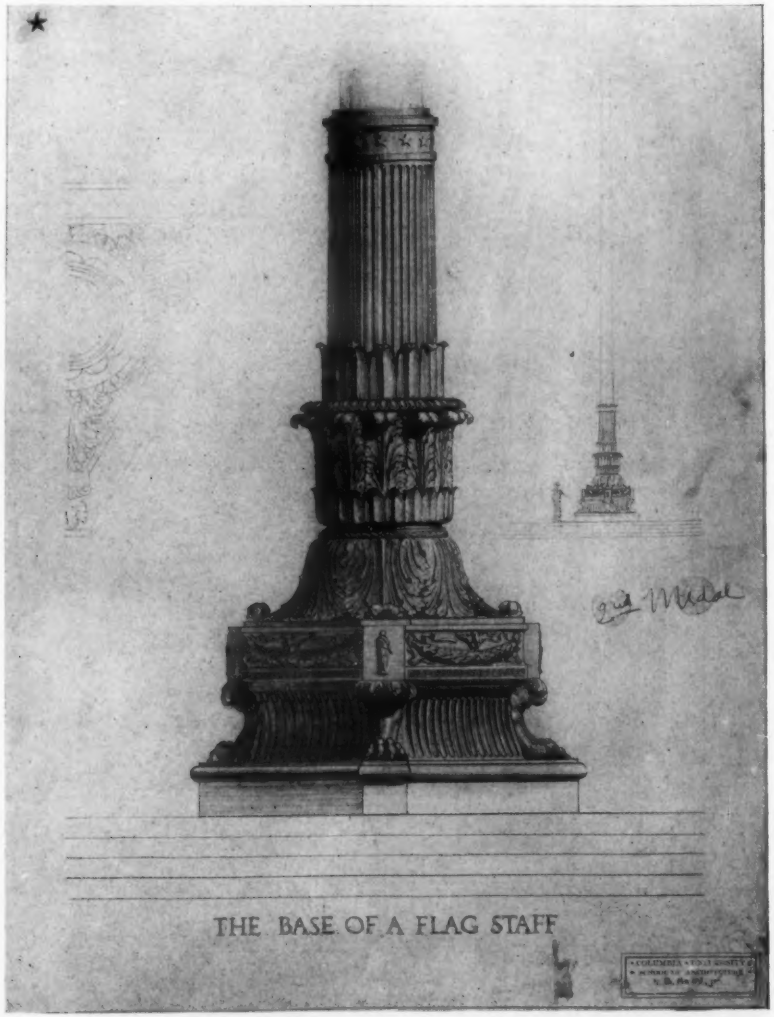
CHAS. FULLER FIRST MEDAL AND PRIZE COLUMBIA UNIVERSITY

P. GOODMAN FIRST MEDAL ATELIER LICHT

EMERSON PRIZE COMPETITION—THE BASE OF A FLAG STAFF

STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

M. C. HILLS SECOND MEDAL COLUMBIA UNIVERSITY

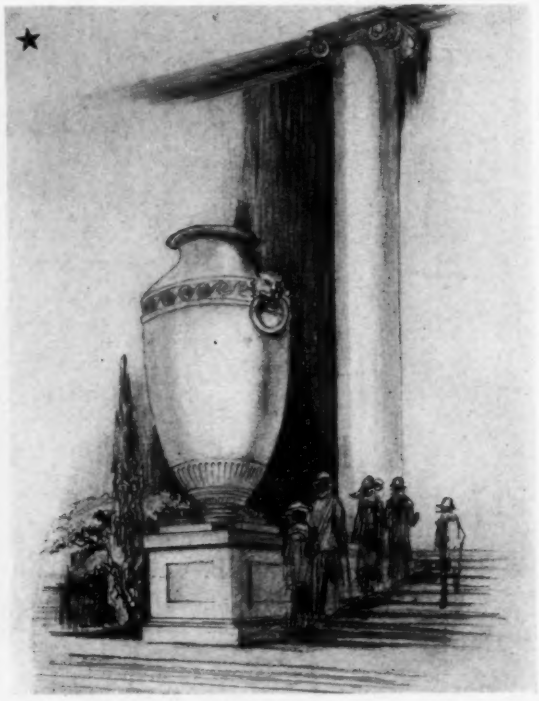


N. B. MEAD, JR. SECOND MEDAL COLUMBIA UNIVERSITY

EMERSON PRIZE COMPETITION—THE BASE OF A FLAG STAFF

STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

FIRST MENTION AND PRIZE
WM. C. PYLE CARNEGIE INST. OF TECH.



FIRST MENTION
J. J. WALLWORK ATELIER HIRONS

FIRST MENTION
R. V. MERWIN COLUMBIA UNIVERSITY

FIRST MENTION
B. G. MARTIN CARNEGIE INST. OF TECH.

CLASS "B"—V ESQUISSE-ESQUISSE—A VASE
THE KARNAK TEMPLE CHAPTER OF THE SCARAB FRATERNITY PRIZE COMPETITION
STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

ALBERTA RAFFL — SECOND MEDAL — UNIVERSITY OF ILLINOIS

H. A. DUMPER — SECOND MEDAL — COLUMBIA UNIVERSITY

CLASS "A" AND "B" ARCHÆOLOGY—V PROJECT—AN ENGLISH EIGHTEENTH CENTURY PUMP ROOM
STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

SHORT TALKS *on* LIVE TOPICS

Summary *of an* interview *with* Rudolph P. Miller *on the* matter *of* Seasonal Building

RUDOLPH P. MILLER, Consulting Engineer has to his credit a successful record as Superintendent of Buildings of the Borough of Manhattan and as Chairman of the Board of Standards and Appeals. His connection with the Building Department exceeded in time that of the total service of many of his predecessors and successors. This long experience during the time of many of the greatest advances made in the field of building construction and construction methods, with his training and experience as an engineer particularly qualifies him to be a member of the Committee on Seasonal Operation in the Construction Industries recently appointed by Secretary Hoover of the Department of Commerce.

In discussing the recent first meeting of this committee, Mr. Miller said that it was decided that the first step should be to establish definitely the fact of seasonal variation in the employment of building labor rather than to accept the general opinion to that effect. As climatic and other conditions and customs are of considerable variation in this country, a survey should be made in the several distinctive regions. This survey will be undertaken by staff employees of the Department of Commerce. With a definite knowledge of the exact conditions which obtain in the various sections of the country, the committee can proceed to develop a recommendation for procedure. Surveys have been made by the Boston Building Congress and the New York Building Congress, the results of which are shown by Seasonal Labor Charts for the various trades employed in building construction.

The whole situation embraces many remotely related influences, each of which must be studied individually and their relationship to the other factors fixed. The problem then will be to find some way to adjust these to each other so that seasonal employment can be obviated.

One influence to that end, cited by Mr. Miller, is due to a condition shown in his annual report as Superintendent of Buildings in 1921. By tabulating the conditions shown by department records since 1868, it is shown that about twenty years ago the average cost of building operations in Manhattan was $40,000 each. In 1922 the average cost was $140,000 each. It is evident that $40,000 operations can be executed within what is usually termed the "building season," from April to October. Many of the operations which average $140,000 each cannot be completed within the minor project "building season" and they consume from twelve to sixteen months' time. This condition naturally makes the entire year an open season.

Building repairs and alterations constitute a large volume of building construction which has several reasons for being seasonal. Among them is the custom of fixed leasing periods. This is one of the conditions that will be extremely difficult to overcome or adjust to other factors. Many other influences were cited by Mr. Miller and he stated that the committee would welcome the suggestions and co-operation of architects and architectural organizations, which should be vitally interested in correcting the condition of seasonal labor in the building industry.

EDITORIAL COMMENT

THE NEXT CONVENTION of The American Institute of Architects will be held in New York City, probably in February, 1924. This decision was reached after a discussion by the Board of Directors of an invitation to hold the next convention in New York, extended by the New York Chapter. Undoubtedly this annual meeting of the Institute in New York will be marked by many unusual features.

It is further learned that a conference held between D. Everett Waid, President of the New York Chapter, and Harvey W. Corbett, President of The Architectural League of New York, has resulted in the decision to combine with the usual exhibition of the League, the annual architectural exhibition of the Institute, that exhibition to be opened conjunctly with the opening of the Institute convention. Under such auspices, the proposed exhibition will no doubt be the largest and most representative showing of the work of the architectural profession and the arts allied to architecture ever held in this country.

* * *

A Letter From Mr. Cunningham

William H. Crocker, Esquire,
Editor, THE AMERICAN ARCHITECT,
Mr. dear Mr. Crocker:

Your editorial in THE AMERICAN ARCHITECT for 4 July, relative to my article on the convention in the *Journal* has been brought to my attention by a fellow practitioner who subscribes to your paper.

The editorial smacks so strongly of the Stock Thunder of the Professional Reformer—the chap who thinks the Earth is flat, and that W. J. Bryan, Henry Ford and Payne B. Healer are the greatest Americans—and I am so secure in the knowledge that my article expressed neither disrespect nor an "offense against good taste," that I should not bother to reply to it, were it not for the fact that your "Thunder" has included a bolt against the Institute and the membership thereof. (I note from the Annuary that you are not a member.)

I contend most emphatically, that the *Journal does* represent the best element in the Institute, just as the Institute includes and represents the best element in the profession—and I personally, along with the numerous "confrères" who have expressed an enthusiastic appreciation of my poor effort, claim Life Membership in that element.

You will find attached, copies of two letters selected from a number I have received, both of them signed by men who represent not only the best element in the Institute, but the best element in the country.

It is most curious to me that you have found a vein of irreverence or flippancy in my remarks, where none was intended nor expressed. My own personal opinion of Saint Paul is that he is, next to Jesus Himself, the most inspiring, lovable character in Religious History—he is so very human. As regards Mr. Taft—had you ever seen him at close range, as I have frequently been privileged to do, you would know that this great good man is a delightfully natural, jovial, representative of the very best America can produce. His wholesome good humor and his keen appreciation of Life as it is, have been famous in Washington for years. And my appreciation of his lovable character was merely an appreciation of the delightful character that is his, and had nothing to do with the High Office he holds in so distinguished a fashion. I might suggest, in this connection, that you, as an Editor, should try to emulate his fine example, and not let your High Office prevent your hearing with two ears and seeing with two eyes. Your editorials might thus become more stimulating, and more in keeping with the high quality of material your paper publishes.

Sincerely yours,

HARRY F. CUNNINGHAM.

Copies to C. H. Whitaker,
Editor, the *Journal*
and E. C. Kemper, Executive Secretary, A. I. A.
July 9, 1923.

Editor's Note: The sentiments expressed in Mr. Cunningham's letter of July 9, are admirable. If his contribution in the *Journal* relative to the convention had even remotely reflected the same feeling, there would have been no occasion for comment. It is hoped that the change of heart indicated will prove to be both real and permanent.

* * *

SEASONAL VARIATIONS in building construction involve waste. That this is true is generally accepted by everyone connected with the building industry. Many reasons have been advanced for this seasonal inactivity. It is the result of several conditions, often remotely related and all of which are, in a great measure, the result of habit or custom.

In order to attempt a correction of this evil, the Secretary of Commerce has appointed a committee to investigate the causes and suggest remedies. The personnel of this committee represents many elements of the building industry. It has

held its first meeting which was devoted to a general discussion of the scope and a plan of procedure.

There are many persons who, while admitting the desirability of instituting successful corrective measures, do not think the desired result can be accomplished. It certainly cannot be unless an attempt is made and these persons are the ones who should dismiss their pessimistic attitude toward the undertaking and lend every influence they may possess toward its accomplishment. We have today many conditions that were thought to have been impossible a few years ago. Some of them have come about through the pressure of necessity and a way being shown by persons and organizations which had faith in the ultimate success of any movement justified by economic necessity and based on a common sense method of procedure.

Architects should be particularly interested in this subject and lend their individual and organized effort.

In this issue is printed an interview with Mr. Rudolph P. Miller, member of the committee. Comments and data on this subject will be published in future issues.

* * *

THE VALUE TO ARCHITECTS and designers of an experience as described by Mr. Sexton in this issue, is very great. At present rates of foreign exchange, a journey, as outlined, can be undertaken safely within the $600 limit to which Mr. Sexton confined his expenditures. Similar architectural rambles in this country and Europe are prolific of valuable results. And, with economy and good planning, they are within the reach of most people.

Referring to sketching in lead pencil out-of-doors, Mr. James Salway, A. R. I. B. A., in the first of a series of articles printed in a recent issue of *The Architect,* London, states:—

> Twenty years ago it was quite the custom for the student to ramble round and pry about after architectural gems, to sketch and to measure whenever opportunity offered. Office work was reinforced by the prospect of this—a comparative delight for the week end; but it seems that the art of doing this is in some danger of being lost. We live in a new world most certainly since the war, and values are still awry; there is much searching after short cuts to prosperity and fame, much copying and reproducing; but sooner or later the rolling ball must fall into its slot, and restlessness give place to repose; the value of methods which are unsensational and uphill, perhaps, but which lead eventually to sounder judgment and more profound delight, will supersede the present tendency to blow trumpets to announce a jester only. Sooner or later we must "wash out" the present fallacy, so conspicuous among many who are still in training, that it is possible to arrive without travelling.

"Short cuts" as a means of acquiring knowledge in any field of art are never thoroughly successful. As well might the painter content himself with a study of nature based on a series of photographs of masterpieces of the landscape painter's art as for an architect to study the monumental buildings of the world from the photographs and measured drawings that are so easily accessible.

Certainly all may not find the means and the time for travel, but we learn from Mr. Sexton's experience that the obstacles are not so unsurmountable as many of us believe. A three months' trip to England, Italy and France, equipped with a sketchbook and a firm resolve to get every possible good result, is the finest post graduate course to an architectural education a man can take.

* * *

NOT ONLY ARE AMERICANS continuing to make inroads on the art of Great Britain, but we learn from the plaintive protest of a member of Parliament, "they have even transported entire houses from England to the United States."

It appears that paintings, etchings and antiques to the extent of approximately eight million dollars were sent to this country during the first six months of this year, as compared with less than three millions for all of 1922. This large exportation, if continued, it is claimed, will so deplete the art treasures of England as to create a very grave condition.

As a matter of fact, collectors of art in this country appear to be more willing to back their appreciation with hard dollars than are those in England. These things, if sold, go to the highest bidder, so that it will be easy to keep England's art in England if they outbid our collectors.

It is therefore proposed, by the member of Parliament already quoted, to stop the alarming exodus by outbidding all foreign would-be purchasers. But he sorrowfully remarks, "There is no market here at the present time." If by "market" is meant to imply a willingness to meet the price offered by Americans, it is just as well perhaps that this art finds lodgment in the country where it is best appreciated.

LEGAL DEPARTMENT

Conducted by

CLINTON H. BLAKE, Jr., of the New York Bar

A SUBSCRIBER makes inquiry as to his rights in a situation which in the practice of architecture is all too common. He writes that a commission has been due to him from a client for more than a year; that the commission charged was six per cent; that the client now objects to the rate as excessive, and refuses to pay, and that there was no written contract covering the services to be performed.

It is not stated whether there was a verbal contract. If there was such a contract, its terms must naturally control, and the rate agreed upon will be the rate which the architect is entitled to charge.

I judge, however, that in the case in question, there was no contract, either written or verbal. Assuming this to be the case, can the architect sustain his claim for a six per cent commission? This will depend upon various circumstances and upon the facts in each case.

The general rule which will determine the question in such a case is our old friend the rule of *"quantum meruit,"* familiar to readers of the Legal Department. This rule stated in plain language is simply that when services are performed and there is no contract to govern the case, the person performing the services will be entitled to recover the reasonable value of the work done. It thus at once becomes a question of what this reasonable value may be and of how it is to be determined. It is true that the case will depend for its determination upon the special facts involved. In a locality where the usual rate for similar services is 6 per cent, the architect can show this fact and, if he can establish that the rate which he seeks to recover is not more than the usual and customary rate in force in the vicinity, he should recover. He may, the New York courts have held, put in evidence the standard charges of the American Institute of Architects as showing the custom in the profession. He may show that he has done work previously for the client and that the rate then charged him was the same as the rate which he now seeks to sustain. He may show that he has charged the same rate generally in his practice and that the client, while he has not before had direct dealing with him, has been aware of the rate charged by the architect to other clients.

All of the foregoing are methods of proving the reasonable value of the architect's services. In the last analysis, it is a question of fact, as to what such reasonable value is.

The client, on his side, may of course bring forward evidence to contradict that adduced by the architect and the question, if carried to a final conclusion, will in all likelihood not be decided until it has been passed upon by a jury or by a board of arbitrators.

The inquiry from the subscriber emphasizes anew how important it is to have a definite contract covering the architect's services, and how great an amount of uncertainty and wholly unnecessary confusion and legal complications will be avoided by securing such a contract in the first instance. It emphasizes, too, the importance of a written, as distinguished from an oral, contract. If the agreement is verbal, there will still be a mass of contradictory evidence to be passed on. If it is in writing, it speaks for itself and will control in determining the respective rights and liabilities of the parties.

Perhaps it would be in order to suggest here that if any subscribers to THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW have legal questions at any time which perplex them, and will submit them, we shall be glad, without the mention of names, to discuss them in these columns, so far as space and the other requirements of the Legal Department will permit. As a rule, the problem of one architect may well be that of many, and a discussion of the legal difficulties of an architect in New York may have a special bearing upon the problem of a fellow architect in the South or West. A discussion of the practical, as distinguished from the theoretical, is always informative and helpful.

LEGAL DECISIONS

THE action was brought by the plaintiff, to restrain the defendant from changing his house from a one-family dwelling house to a two-story building with upper and lower apartments, to be occupied by separate families. The plaintiff and the defendant had both derived title from the same grantor, who had placed upon the land certain restrictions bearing on its development as a residential section. All sales were made subject to these restrictions. The restrictions provided what portion of the land might be used for business, for churches, for club purposes, for railroad station and for park places. They then provided, in addition, "that the land in the entire tract shall be used for residence and dwelling purposes only" and

they further provided that "but one dwelling and one barn shall be erected in each subdivision lot appearing on said map." The court held that, if the words "dwelling house" had been used, the phrase would have been construed as including apartments; that the word "dwelling" alone, without the addition of the word, "house" did not exclude an apartment, and that consequently, and notwithstanding the restrictive covenants, the defendant was within his rights in changing his house into the two-family apartment house described.

Bennett et al v. Petrino, New York Court of Appeals, April 17, 1923. (Not yet reported.)

A CONTRACT provided as follows:

> "The work embraced in this contract shall be begun within ten days after this contract binds and takes effect, and shall be prosecuted regularly and uninterruptedly thereafter with such force as to insure its full completion within one hundred thirty days from the date of the award; the time beginning, rate of progress and time of completion being essential conditions of this contract."

Upon completion of the work, the issue arose between the parties whether Sundays were to be included in the time limit specified in the foregoing clause, one side claiming that the period was to be taken as a whole, including Sundays, and the other side claiming that the clause should not be so construed as to include Sundays. The court held that the time limit did not include Sundays; that the work specified in the contract could not be legally performed on Sunday under the Laws of the State of Kansas, and that Sundays should accordingly be excluded in computing the time within which the contract had to be performed.

VanHafften v. Clayton, Kansas City Court of Appeals 246 *Southwestern* 964.

(NOTE: In view of the last case cited, it is evident that it is safer practice to specify a certain date by which the work shall be completed, rather than to specify that the work shall be completed within a certain number of days, from the date of the contract, or from any other fixed time.—C. H. B., Jr.)

THE sub-contractors entered into three separate contracts with the general contractor. By the first of these contracts, they agreed to furnish the general mill work necessary in the construction of the building, and aggregating the sum of $65,000. By the second agreement, they agreed to furnish and install bank fixtures for the sum of $21.28. By the third agreement, they undertook to install the mill work furnished under contract No. 1 and also to furnish additional doorbucks for the total sum of $31,266. A lien having been claimed for the work done and materials furnished, it was apparent that the sub-contractors, so far as the first contract was concerned, were materialmen, and that, so far as the remaining two contracts were concerned, they were contractors. The general contractor claimed that the three contracts, having been entered into at the same time and as a part of the same transaction, should be considered as a single contract for the purposes of the lien statute, and that the sub-contractors, by entering into contracts No. 2 and No. 3 in effect merged these contracts in contract No. 1 and thereby waived the benefit of their lien rights as materialmen under the latter contract. The court held that this contention could not be sustained; that the contract for the material, *viz:* contract No. 1, was complete in itself, and that the sub-contractors did not waive the benefit of that contract by entering into other and different contracts for different classes of work or material and with different subject matters.

Tacoma Mill Work etc., Co., v. McClintic-Marshall Co., U. S. Circuit Court of Appeals, 9th Circuit. (Not yet reported)

THE plaintiff, in his complaint, alleged that he had performed all of the conditions provided for by the specifications up to the point where he was stopped by the owner from performing further. The owner claimed that the plaintiff could not recover, without an allegation that the work had been done to the satisfaction of the architect and owner. The court held that the allegation of the plaintiff under the circumstances was sufficient, and that it was not necessary that he should allege that the work had been completed to the satisfaction of architect and owner.

Rosen v. Dawson, 195 Pacific 63.

DEPARTMENT *of* ARCHITECTURAL ENGINEERING

TORSIONAL STRENGTH *of* RECTANGULAR SECTIONS *of* CONCRETE, PLAIN *and* REINFORCED

BY C. R. YOUNG, *Associate Professor of Structural Engineering;* W. L. SAGAR *and* C. A. HUGHES, *Demonstrators in Applied Mechanics, University of Toronto*

CASES of torsion on rectangular sections of concrete or reinforced concrete are of frequent occurrence in practice, and under certain conditions the stresses resulting therefrom may be large. Wall beams, girders or headers next to floor openings, wall foundation beams used in cantilever wall footing construction, and piers supporting skew arches are examples of members subjected to twisting or torsional moment. More commonly than not, any analysis of the stresses in members subjected to twisting has been made by the simple torsion theory, which applies only to circular sections, with the result that large errors have often been committed in the calculations. While for square sections the true maximum shearing stress is only 6% greater than is given by applying the common or circular section theory, for a rectangle with the long side twice as great as the short one, the true maximum stress is 50% greater than is given by the common theory.

Exact Method

Exact analysis of the torsion problem was first made by the noted French elastician, Saint-Venant. The expression for torsional shearing stress derived by him is very cumbrous, as may be seen by reference to Burr's Elasticity and Resistance of Materials, where the subject is presented in English with considerable detail. Perhaps the most remarkable conclusion reached by Saint-Venant was that the maximum torsional shearing stress does not arise at the corners of a

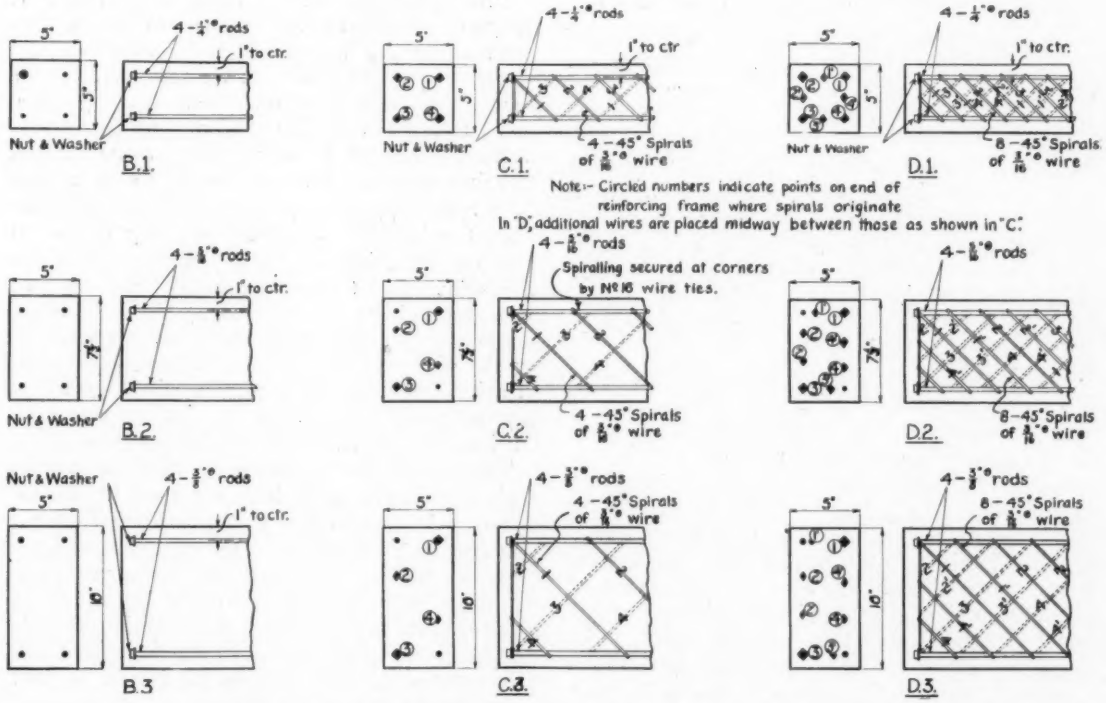

B.1.
C.1.
D.1.
B.2.
C.2.
D.2.
B.3
C.3.
D.3.
Nut & Washer
1" to ctr.
4 – 45° Spirals of 3/16" wire
8 – 45° Spirals of 3/16" wire
Spiralling secured at corners by No 16 wire ties.
Note:– Circled numbers indicate points on end of reinforcing frame where spirals originate
In "D" additional wires are placed midway between those as shown in "C".

Fig. 1. Rectangular Torsional Specimens of Reinforced Concrete

rectangular section, as was implied in the common or older theory, but at those points on the boundary nearest the centroid, namely, at the centers of the long sides.

For practical purposes of design it is useful to employ a simplification of Saint-Venant's formula proposed by R. J. Woods in his Strength and Elasticity of Structural Members. His formula is:

$T=kb^2hq_1$

where k has values varying with the ratio of h to b as follows:

h/b	k	h/b	k
1	0.208	3.5	0.275
1.5	0.231	4	0.282
2	0.246	5	0.292
2.5	0.258	10	0.312
3	0.267		

In this formula, T is the torsional moment in inch-pounds; b is the short side and h the long side in inches, and q the maximum torsional shearing stress at the centers of the long sides.

Torsion on Reinforced Concrete Beams

Since from the nature of torsion, elongation of the edges of a rectangular section sets up, it might appear that longitudinal reinforcement in the corners of a concrete beam subject to torsion would be useful. In the lower corners of most beams, longitudinal rods running full length already exist, and these might conceivably assist in resisting the warping effect of torsion, as might top corner rods carried full length of the beam. What justification there is for this hypothesis will be shown forth below.

Torsional Shear Reinforcement

Provision for torsional shearing stresses on a given cross section should apparently be made in very much the same way as it is made for ordinary shearing or diagonal tension stresses. The inferior strength of concrete in tension as compared with shear naturally tends to bring about rupture of a torsion specimen of concrete along diagonal lines, and this is substantiated by actual experiment. Investigation has shown that rupture of concrete specimens in torsion is along a spiral surface inclined at 45 deg. with the axis. It is, therefore, reasonable to assume that spiral reinforcement at an angle of 45 deg. would be most effective, just as web reinforcement for vertical shear in beams is found to be best if inclined at this angle. Inclined stirrups or bent up rods in beams placed there for the purpose of resisting vertical shear, or diagonal tension, have some value, so far as they go, in resisting torsion. For torsional shear, however, they should run in opposite directions on opposite faces of the beam. On the side next the loading, the usual bent up steel is available for the resistance of both vertical shear and torsion, but on the far side it runs in the wrong direction to resist torsional stresses. However, as the existing vertical shearing stresses operate against the torsional stresses, the steel on the far side may not be required at all for torsional stresses. Some designers have, for beams carrying a heavy torsional moment, placed all of the inclined steel on the inside of the beam, so that the combination of the vertical shearing and torsional shearing stresses on this side might be met effectively. Such practice assumes that on the far side the two kinds of shearing stress offset each other to such an extent that the net shearing stress is within the capacity of plain concrete.

For very heavy torsional stresses, additional reinforcement may be provided by placing steel in the top and bottom faces inclined to the axis of the beam, at, say, 45 deg. In such cases, the natural system of reinforcement to employ would be heavy wire, or light rods wrapped about the longitudinal steel at a 4 deg. spiral with a pitch such that at least one inclined rod would be cut on each face of the beam.

Although great care is customarily taken by designers of reinforced concrete to insure that shearing stresses in beams do not rise above a conservative specified limit, as, for example, 120 lb. per sq. in. under the Joint Committee specifications, torsional shearing stresses may, in certain instances, amount to over 100% of the vertical shearing stresses. Wall girders of comparatively short span supporting flexible beams of long span from the interior of a building, may be loaded with concentrations of 10,000 lb. or more on one side only. The torsional moment thus produced on a wall girder of, say, 10 by 20 in. section, would, assuming the torsion to be wholly absorbed by the girder, give rise to a maximum torsional shearing stress on the long sides of the girder of approximately 100 lb. per sq. in., or nearly as much as the limiting vertical shearing stress.

That no failures have been recorded through the neglect of torsion in designing rectangular beams, is no doubt due to the restraining effect of the slab and to the fact that the working stresses for shear heretofore employed have been very conservative. With the growing tendency to increase shear stresses to as much as 12% of the ultimate compressive strength of the concrete, greater care will need be taken to provide for torsion as well as for shear.

Tests on Concrete Sections

But little investigation of the torsional strength of concrete appears to have been carried out either on this continent or abroad. Mörsch, in "Der Eisenbetonbau," cites torsional tests to failure on a series of solid and hollow cylindrical specimens of plain concrete and on some hollow cylinders reinforced by spirals. The solid cylinders which

consisted of 1:4 concrete from 79 to 98 days old gave an average computed torsional shearing stress of 243 lb. per sq. in. Hollow cylinders of the same material from 52 to 55 days old, gave an average strength of 247 lb. per sq. in. Addition of 45 deg. spiralling to cylinders, tested when 60 days old, gave computed ultimate torsional shearing strengths of from 513 to 736 lb. per sq. in., depending upon the amount of reinforcement. The increment in strength over that of the plain cylinders was in direct proportion to the reinforcement and ran from 31% to 124%.

Experiments carried out for the Deutscher Ausschusz für Eisenbeton comprising solid cylindrical, hollow cylindrical, square and rectangular specimens of 1:2:3 mix, 45 days old, gave ultimate torsional shearing stress of from 243 to 462 lb. per sq. in. with an average of 375 lb. per sq. in. The reinforced specimens included those with longitudinal rods only and some with longitudinal rods and spiralling. It was found that longitudinal reinforcement was in itself of little value, improving the resistance of the specimen by not more than 12%, even though rods were used in both the middle of the sides and in the corners. Sloping longitudinal rods were found to be of some value, providing they slope in the proper direction to resist the torsion. Spiralling to the extent of 0.5% provided with liberal longitudinal reinforcement increased the strength of specimens from 129 to 156%.

TABLE 1—SIZE AND REINFORCEMENT OF RECTANGULAR TORSIONAL SPECIMENS OF CONCRETE

Specimen No.	Nominal Size In.	Actual Vert X Hor'l In.	Longitudinal Reinforcement	Spiral Reinforcement	Percentage of Spiralling
A1	5X5	4.98X5	None	None	None
A2	5X7.5	5.0X7.5	"	"	"
A3	5X10	5.0X10.09	"	"	"
B1	5X5	5.06X5.0	4 rods ¼ in. dia.	"	"
B2	5X7.5	5.06X7.59	4 " 5/16 in. dia.	"	"
B3	5X10	5.0X10.19	4 " ⅜ in. dia.	"	"
C1	5X5	5.13X5.19	4 " ¼ in. dia.	4-45° spirals of 3/16" iron wire	0.94
C2	5X7.5	5.13X7.68	4 " 5/16 in. dia.	"	0.55
C3	5X10	5.18X10.31	4 " ⅜ in. dia.	"	0.39
D1	5X5	5.19X5.31	4 " ¼ in. dia.	8-45° spirals of 3/16" iron wire	1.88
D2	5X7.5	5.19X7.81	4 " 5/16 in. dia.	"	1.10
D3	5X10	5.13X10.38	4 " ⅜ in. dia.	"	0.78

UNIVERSITY OF TORONTO TEST SPECIMENS

In planning the investigation here reported, it was thought desirable to make up the test specimens so as to throw light on the following:

1. Effect of varying the ratio of the long and short sides of the cross sections
2. Effect of adding longitudinal reinforcement only
3. Effect of adding longitudinal reinforcement and light spiralling
4. Effect of adding longitudinal reinforcement and heavy spiralling
5. Value of torsional modulus of elasticity of plain concrete

Twelve test beams in all were made. They were of three sizes, 5 by 5, 5 by 7½ and 5 by 10 in., all beams being 5 ft. long. For each size, one beam was made of plain concrete; one contained light longitudinal reinforcement only; one contained medium longitudinal reinforcement and light spiralling; and a fourth heavy longitudinal steel and close spiralling. Details of the reinforcement are given in Table 1 and in Fig. 1.

The specimens were made of 1:2:4 concrete and were tested at the age of 28 days. The mild steel longitudinal reinforcement had a yield point varying from 34,600 to 37,200 lb. per sq. in.,

Fig. 2. Torsional Fracture of Rectangular Specimens of Plain Concrete

while the yield point of the spiralling wire was 31,550 lb. per sq. in.

Plain concrete specimens when broken in torsion gave the characteristic spiral fracture shown in Fig. 2. The first evidences of failure in reinforced specimens were diagonal cracks crossing the faces of the beam at approximately 45 deg. with its axis. These cracks, for the most part, originated near the center of the span, where, by reason of the combination of the torsional and flexural stresses they would be most likely to start.

TEST RESULTS

The three plain concrete test beams A1, A2, and A3 were made up and tested (1) to discover the torsional strength of plain concrete, and (2) to determine the torsional modulus of elasticity of this material. The torsional moment under which each of these members failed, together with the

apparent or computed maximum torsional shearing stress for both plain and reinforced specimens is given in Table 2. This apparent fibre stress at failure was calculated by applying the exact torsion theory to these rectangular cross sections on the assumption that the material was homogeneous and isotropic and that the proportionality of stress and deformation obtained up to the moment of failure. For rectangular cross sections, the maximum torsional shearing stress which arises at the center points of the long sides of a rectangle, or at the center points of each of the four sides of a square, may be conveniently expressed by the previously cited formula of R. J. Woods, rearranged:

$$q_1 = T/kb^2h$$

TABLE 2—ULTIMATE TORSIONAL SHEARING STRENGTH OF RECTANGULAR BEAMS

Specimen No.	Actual Ratio $\frac{h}{b}$	Torque at Failure in.-lb.	Computed Maximum Torsional Shearing Stress, lb. per sq. in.	Ratio to Average Torsional Strength of Plain Concrete Specimens	Average, or Secant Torsional Modulus of Elasticity, F, lb. per sq. in.
A1	1.00	13,900	539		1,580,000
A2	1.50	20,200	467		1,625,000
A3	2.02	37,400	602		1,352,000
			Average 536		Average 1,519,000
B1	1.01	14,000	532	0.99	
B2	1.50	22,700	506	0.95	
B3	2.04	36,700	584	1.09	
			Average 541	Average 1.01	
C1	1.01	19,000	668	1.25	
C2	1.50	29,000	621	1.16	
C3	1.99	36,000	530	0.99	
			Average 645 omitting C3	Average 1.21 omitting C3	
D1	1.02	25,000	838	1.56	
D2	1.50	36,000	740	1.38	
D3	2.02	53,400	790	1.47	
			Average 789	Average 1.47	

The values of the coefficient k for side ratios similar to those adopted in the present test specimens may be found from the table given in the first part of this article.

A comparison of the relative strength of torsional members variously reinforced may be made by considering the figures in the fifth column of Table 2. At the same time, the value of each type of reinforcement may be seen by comparing the strength of the member in which it occurs with the strength of a plain concrete member of the same size.

From the fourth column of Table 2, it is seen that the average computed maximum torsional shearing stress for the plain concrete specimens is 536 lb. per sq. in. Since the tensile strength of 1:2:4 concrete varies from about 180 to 440 lb. per sq. in. and the true shearing strength is over 1,400 lb. per sq. in., the torsional approaches the tensile strength more nearly than the shearing strength. This is to be expected when it is remembered that at any face of the specimen the stress condition resembles that in the web of a concrete beam, that is, the governing stress is diagonal tension.

A consideration of the results for the specimens of series B, which were reinforced with longitudinal steel only, shows that corner reinforcement has apparently little value, since the computed stresses developed at the points of maximum stress average but little higher than for unreinforced specimens. The same general principle was disclosed in the

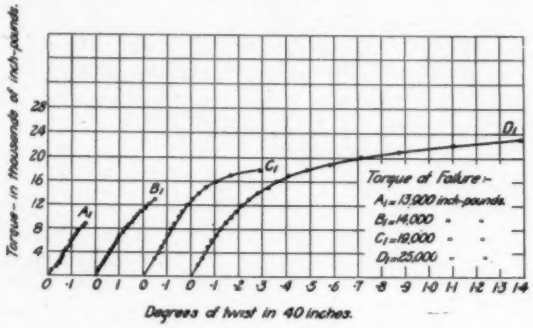


Fig. 4. Torque-Twist Curves for 5 x 5 in. Specimens, Plain and Variously Reinforced

Deutscher Ausschusz für Eisenbeton experiments, although side rods added materially to the strength of the specimens in the latter tests. The angular distortion of a concrete beam is not great enough up to the point of failure to bring corner longitudinal reinforcement into play as a factor in resisting the applied torque.

Some benefit is derived from spiral reinforcement, as will be seen by considering the results for the specimens of series C and D. The wide

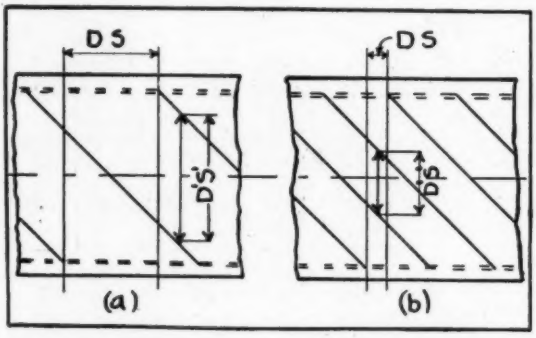


Fig. 3. Effect of Pitch of Spiralling on Torsional Strength

pitched spiralling of series C does not, however, strengthen the member to the extent that might be expressed, the strength as compared with a plain concrete specimen being only, on an average 21% more, excluding in the average the value for beam C3 which obviously is erroneous and unreliable.

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The spiralling of series D, being only half the pitch of that of series C might be expected to strengthen the members proportionately. The addition averages 47% of the strength of the plain concrete members, or somewhat more than double the percentage increase for series C.

Considerably less benefit from spiral reinforcement is indicated in the series of tests here reported than was found in the tests for the Deutscher Ausschusz für Eisenbeton. With 8

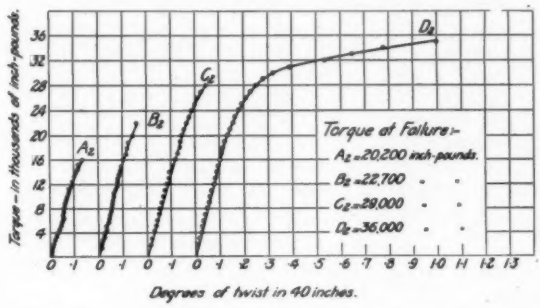

Torque - in thousands of inch-pounds.
Degrees of twist in 40 inches.
Torque at Failure:-
A2 = 20,200 inch-pounds.
B2 = 22,700 . .
C2 = 29,000 . .
D2 = 36,000 . .

Fig. 5. Torque-Twist Curves for 5 x 7½ in. Specimens

spirals, giving a spiral reinforcement of about 0.5%, the latter tests gave an increase in strength of from 129 to 156%. In the latter tests there were from 6 to 8 longitudinal rods employed and the size of specimens was considerably greater than in the tests carried out by the authors. Doubtless the use of longitudinal rods in the middle of the sides of the German specimens contributed substantially to their torsional strength. The greater size of the specimens at the same time rendered the irregularities of the fabricated reinforcement units much less important. Particularly with the 5 by 5 in. University of Toronto specimens the difficulty of securing a reinforcement unit to full plan dimensions at the center cross section was great. However, no better work could be expected in actual practice, and probably it would be much worse. It is not known whether special care was taken in making the German specimens, but the authors' specimens were made under typical, commercial conditions. Attachment of the spiralling to the side rods may have further accounted for the high strengths given in the German tests.

Computation of the stresses in the spiralling of the specimens of series C and D shows, according to Table 3, that the breakdown is not necessarily coincident with the passing of the yield point which was 31,550 lb. per sq. in. For the 5 by 7½ and 5 by 10 in. specimens, however, the yield point in the spirals was closely approached at the point of failure.

Mörsch's method of calculating the stress in the spiralling was adopted. According to this, the steel spirals are assumed to develop the difference between the ultimate torsional moment of the reinforced specimen and the ultimate torsional moment of a corresponding plain concrete specimen. Half of the shearing resistance is assumed

TABLE 3—STRESS IN SPIRALLING AT FAILURE OF SPECIMENS

Specimen No.	Excess of Torsional Moment Over that for Corresponding Plain Concrete Specimen, in.-lb.	Stress in Spiralli g lb. per sq. in.
C1	5,100	18,000
C2	8,800	31,000
C3	Unreliable	—
D1	11,100	19,500
D'	15,810	27,900
D3	16,000	28,200

to be taken up by the reinforcement which lies at an angle of 45 deg. to the torsional shear plane, and half by the compressive resistance of the concrete acting at right angles to the direction of the reinforcement.

The value of closer spiralling in series D is evident from an examination of Fig. 3. Where four spirals only are used, as in (a), there is a longitudinal zone of length DS, in which a transverse plane will cut only one diagonal wire or rod on the near face of the specimen. Further, there is

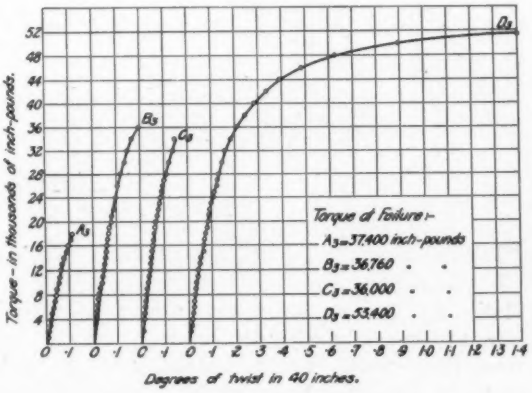

Torque - in thousands of inch-pounds.
Degrees of twist in 40 inches.
Torque at Failure:-
A3 = 37,400 inch-pounds
B3 = 36,760 . .
C3 = 36,000 . .
D3 = 53,400 . .

Fig. 6. Torque-Twist Curves for 5 x 10 in. Specimens

a depth D^1S^1 in which torsional shearing stresses may act on plain concrete. The corresponding distances for a specimen with eight spirals are shown in (b), and are very much less. As much smaller zones are left unreinforced with close spiralling, its advantage is evident.

Inclined stirrups or bent up rods in a reinforced concrete beam may be counted upon, if their area is in excess of ordinary shear requirements, to help resist the torsional shear on the face next the loading. On the other face, unfortunately, they run in the wrong direction. If the net shearing stress on this face due to the combination of vertical shear and torsion be in excess of the shearing strength of plain concrete, special torsional reinforcement would need to be added. Anchorage for

such steel is most readily provided by utilizing it in the form of a spiral, thus increasing the torsional resistance through the presence of steel on the horizontal faces.

Torsional Rigidity

The angular deformations observed for the various specimens are plotted in Figs. 4, 5 and 6. In these diagrams the degrees of twist in a length of 40 in. are shown for various torsional moments nearly up to the point of failure.

Examination of the curves shows that the rigidity of a specimen of any given size is but little increased by the addition of reinforcement, whether it be longitudinal or spiral. Such deformation as can occur before the breakdown of the specimen is apparently not affected by reinforcement of the type and quantity used in the specimens.

For plain concrete specimens the torque-twist curve is substantially straight. The average or secant torsional modulus of elasticity, F, has been computed for the portion of the curves up to practically the last plotted points and is given in the last column of Table 2. The formulae used were as follows:

$F=410\ Tl/ab^4$, for square specimens

$F=205\ Tl\ (b^2+h^2)/ab^3h^3$, for rectangular specimens

Where T=torque in in.-lb.

l=length of specimen in inches between gauge points

a=angle of twist in degrees

b=short side in inches

h=long side in inches

The curvature of the torque-twist curves for the spirally reinforced specimens is more marked than for the plain specimens for those containing only longitudinal reinforcement. For those containing the close spiralling the addition to the toughness of the specimen is marked.

Conclusions

Study of the behaviour of rectangular beams of concrete under torsion, as evidenced by the specimens tested by the authors, appears to warrant the following conclusions:

(1) Rectangular specimens of plain concrete with various ratios of long to short sides develop substantially the same computed maximum torsional shearing stress at the center of the long sides. For 1:2:4 concrete one month old this is about 540 lb. per sq. in.

(2) Longitudinal reinforcement alone is of little value in reinforcing concrete beams for torsion.

(3) Spiral reinforcement increases the torsional strength of beams, the increment in strength being approximately proportional to the amount of such reinforcement. Spiralling to the amount of from 0.4 to 1.0% may be expected to increase the torsional strength of a member with or without straight longitudinal rods from 20 to 50%.

(4) The torsional modulus of elasticity of plain concrete of 1:2:4 mix one month old averages about 1,500,000 lb. per sq. in.

New Lumber Standards

THE Consulting Committee on Lumber Standards, on which Emery Stanford Hall, A. I. A. represents the architectural interests, recently met in Chicago. It adopted resolutions which will undoubtedly be promulgated by the Department of Commerce within a few months. This is an important step toward the standardization of the manufacturing of lumber. At the same time the Manufacturers' Permanent Standardization Committee on Structural Grades made a recommendation which is also here given.

Resolution as Amended

(1) That the terms "Inch Board" and "2 inch dimension" be dropped and in the interest of sound business the terms "Standard Board" and "Standard Dimension" be adopted and applied to both hardwoods and softwoods.

(2) That 13/16" S2S (measured at standard commercially dry shipping weight and moisture content for each species) shall be adopted as the minimum thickness of the standard "factory" board and "box" board, which comprise lumber for remanufacture, graded on the basis of

(a) clear cuttings; or
(b) sound cuttings; or
(c) quality of the piece as a whole.

(3) That 25/32 S1S or S2S (measured at standard commercially dry shipping weight and moisture content for each species) shall be adopted as the minimum thickness of the standard "yard" board, which comprises lumber for general construction and other ordinary purposes, graded on the basis of the use of the piece as a whole.

(4) That 1-5/8" S1S or S2S (measured at standard commercially dry shipping weight and moisture content for each species) be adopted as the minimum thickness for all standard "dimension" not more than 12" wide.

(5) That 3-5/8", 5-5/8", 7-1/2", 9-1/2" and 11-1/2" S1S or S2E (measured at standard commercially dry shipping weight and moisture content for each species) be adopted as the standard finished widths of boards, dimension and finish.

(6) That consideration be given to the general production of 1/2" boards when not over 8" wide.

(7) That commercially dry lumber shall not weigh more than the present standard shipping weights of the regional groups of manufacturers for the various species.

Recommendation of Manufacturers' Permanent Standardization Committee on Structural Grades

The committee recommends that all structural timbers be divided into two general divisions to be known as "Standard" and "Common"; the "Standard" to include that timber commercially known as Merchantable Longleaf in Southern Pine and Selected Common in Douglas Fir; the "Common" to include those grades designated as Square Edge and Sound and No. 1 Common in Southern Pine and No. 1 Common in Douglas Fir and that the present specifications of the regional associations be revised along the lines of the Forest Products Laboratory's recommendation so that the grades may be given a definite working stress.

Decisions of National Board for Jurisdictional Awards

No Further Action On Metal Trim Dispute —Decision On Foremanship Over Concrete Work

THE two letters quoted below, dated May 26, have been sent out by Wm. J. Spencer, Secretary of the National Board for Jurisdictional Awards, and attested by E. J. Russell, Chairman. The former is addressed to John J. Hynes, President, Amalgamated Sheet Metal Workers' I. A., and the latter to the Associated General Contractors.

Metal Trim

"You are herewith advised of the action taken by the National Board for Jurisdictional Awards in the Building Industry at its meeting held at headquarters, May 21-25, 1923, in connection with the subject noted above:

"'Inasmuch as the Carpenters declined to participate in the first hearing on metal trim, notwithstanding their agreement to do so and the fixing of the date of the hearing to suit their convenience, and inasmuch as they did not participate officially in the rehearing in February held at the request of the American Federation of Labor, the Associated General Contractors and others, and inasmuch as they have severed all connections with the Board and previous affiliations, the National Board for Jurisdictional Awards in the Building Industry realizing that the matter at issue cannot be permanently settled until the Carpenters resume their former affiliations and agree to abide by decisions, the Board does not feel justified in taking any further action at the present time in the metal trim matter.'

"You will please accept this communication as official notification of the action taken."

Foremanship Over Concrete Work

"You are herewith advised of the action taken by the National Board for Jurisdictional Awards in the Building Industry during its meeting held at headquarters, May 21-25, 1923, in connection with the subject set forth in the above title:

"'Foremanship over concrete work on walls, foundations, footings, etc., below the first floor shall be done by laborers under the supervision of such skilled mechanics as the employer may designate.'

"You will please accept this communication as official notification of the action taken."

Other matters were also taken up by the Board during their five-day session, and the decisions rendered are as follows:

Corrugated Sheeting

"The erection of corrugated metal sheeting on steel frame construction when the sheets are simply end and side lapped is the work of the Iron Workers; the erection of all other corrugated metal sheeting of No. 10 gauge or lighter is the work of the Sheet Metal Workers."

Derricks, Erection and Handling for Setting Stone

"The Stone Setter shall have sole jurisdiction over hand derricks in connection with the setting of stone.

"The erection and operation of power derricks for setting stone shall be done by the Iron Workers under the direct supervision of the Stone Setter who shall determine the number of men to be employed."

Jurisdiction Over Cork Insulation and Substitutes Therefor

"The Board having been informed that the several parties to the agreement of May 1, 1918, relative to the erection and installation of cork and other insulations as substitutes have not, as suggested by the Board, renewed that agreement, and it being contended by some of the subscribers to the agreement that the same has been automatically abrogated so that no understanding is now in effect, the following decision is rendered without prejudice to any of the parties if circumstances make further consideration of the matter necessary or desirable."

"*Decision:* In the matter of the erection and installation of cork and other insulations used as substitutes the United Brotherhood of Carpenters and Joiners of America shall control all cork and other substitutes when laid dry, such as floors, partitions and ceiling insulation, including the cutting and fitting thereof; the Operative Plasterers and Cement Finishers' International Association and the Bricklayers, Masons and Plasterers International Union shall jointly control all cork and substitutes therefor when cement or other plastic materials are used, including the cutting and fitting thereof; on all jobs of cork laid in asphalt, it shall be permissible for the laborer to do the work of smearing the asphalt, under the supervision of the mechanic."

Artificial Stone-Granite, Dressing, Altering and Finishing

"In the matter of dispute between the Granite Cutters' International Association and the Journeymen Stone Cutters' Association relative to artificial stone, the dressing, altering and finishing of artificial stone, cast in imitation of natural stone is the work of the Journeymen Stone Cutters' Association except that when any such artificial stone, by reason of hardness or texture, requires the use of granite cutters' tools for the proper dressing, altering or finishing it is the work of the Granite Cutters' International Association."

Hollow Metal Window Frames and Sash

"A request for a rehearing was presented by the Sheet Metal Workers, of that part of the Board's decision referring to the so-called Campbell Sash and Window, which had been awarded to the Iron Workers, it was stated that the window was now being made of lighter material. Action was deferred until the next meeting of the Board and all parties are to be notified to be present and present evidence in the matter."

Vitrolite and Similar Opaque Glass

"At the request of the Painters a rehearing was granted and evidence submitted by the Bricklayers, representing the Marble Setters, and the Painters, representing the Glaziers. The Board in executive session decided to supplement its decision of March 11, 1920, with the following:

"It is the opinion of the Board that the foregoing decision of March 11, 1920, is intended to convey to the Bricklayers, Masons and Plasterers International Union all counters and lavatories constructed of vitrolite or carrara glass and such glass when used in mural decorations on buildings in place of marble or other stone or used in conjunction with marble or other stone as panels on counters.

"It is the further opinion of the Board that the foregoing decision is intended to convey all vitrolite, opalite, white opal and other opaque glass installed on false work or furring strips secured with screw rosettes, molding, putty, screws, expansion or toggle bolts, on walls, ceilings, partitions or columns to the Brotherhood of Painters, Decorators or Paperhangers of America.

"The agreement of December 5, 1910, which was concurred in by the Board of Awards on July 12, 1922, remains in effect, and any disputes that may arise in con-

nection with the subject of the agreement and the Board's decisions shall be adjusted in accordance with the provisions contained in Sections 3 and 4 of the agreement."

ELECTRICAL WORK ON ELEVATORS

The Electrical Contractors requested an interpretation of the Decision of the Board regarding the installation of feed wires to controllers. The contention arose over the installation of new controlling devices. The Elevator Constructors insisted that the devices were not part of the feed wire system while the Electrical Workers claimed that they come within their version of the decision.

The Board in executive session decided: "That the work in dispute seemed to be covered by the present decision and it is the decision of the Board that the work belongs to the Elevator Constructor."

ERECTION OF CONDUO BASE

Conduo base is a new form of metal base with raceways for the insertion of wiring from which any number of outlets may be made and electrical connections provided in any part of a room by removing the face from the base.

The Electrical Workers contended that it was solely for the use of their wiring and that only an electrical worker could install it and make it safe electrically and commercially profitable to those using it. The sheet metal workers claimed that it was purely a metal trim base and that it could only be installed properly by mechanics in their trade. After a three-hour hearing of the evidence in the matter the Board decided to defer its decision until the next meeting.

FLAT-FACED TILE

The following agreement was entered into on February 21, 1911, and amended May 26, 1923, by and between duly accredited representatives of the Bricklayers and the Slate and Tile Roofers:

"Jurisdiction is hereby conceded the Bricklayers, Masons and Plasterers' International Union over the laying or setting of flat-faced tile of every description when laid in mortars on all flat roofs or promenade roofs.

"Jurisdiction is hereby conceded the Slate and Tile Roofers' International Union over flat-faced tile of every description, and corrugated tile, when laid in any preparation of asphalt on roofs, flat or otherwise.

"On motion the foregoing agreement was concurred in and declared to be the decision of the Board."

The two other disputes, involving the Bricklayers and Plasterers, were taken under consideration by the Board. One was "The Setting, Installing or Sticking of Artificial Stone," the other "Plastering Work for Preparation of Walls, Ceilings, etc., for Tiling." The Board decided to hear both cases, but subsequently deferred its decision until the next meeting to give the Plasterers an opportunity to present their side of the controversy.

Hearings upon the following subjects were unanimously deferred until the next meeting:

Rehearing of the decision on Low Pressure Heat, Rehearing on the decision on Asphalt Shingles, Installation of Zenithern.

Veneered and Solid Furniture

ALTHOUGH there is a public prejudice against veneered products, a large proportion of all the furniture manufactured has more or less veneered construction in it, according to the Forest Products Laboratory, Madison, Wis. The high grade finish woods are used almost entirely as veneers. More table tops, drawer fronts, doors, and side and end panels of all kinds of furniture are built up of three or five layers of wood than are made of single solid pieces.

Veneer construction has several advantages over solid wood, besides permitting the use of cheaper material in the core or on unseen surfaces. These advantages should be borne in mind by the purchaser who thinks that veneering cheapens the product.

Alternate piles in practically all built-up panels are laid with their grains running at right angles to each other; that is, in three-ply veneer the face veneers are glued at right angle to the core, and in five-ply material the face veneers and the core are parallel and the intervening layers or crossbands are laid at right angles. A panel of this construction has the advantages that it is more nearly of the same strength in all directions, and that as it absorbs or gives up moisture it shrinks and swells about as much one way as another. Splitting along the grain in one set of plies is made impossible by the cross grain of the alternate plies, and rapid shrinking across the grain in the face veneers is offset by slow shrinkage along the grain in the core.

Veneered panels do not change dimensions as much as solid wood. Warping is largely eliminated in thick panels by plywood construction.

More care can be taken in the selection of surface wood in veneered furniture than can be taken in solid furniture. The manufacturer can dry veneer stock very quickly and cheaply, and he can utilize all of his wood to the best advantage.

Veneered furniture, if properly cared for, will last as long as solid furniture. The glued joints when correctly made are as strong as the wood under ordinary service conditions. Long exposure to very damp air or direct contact with water, of course will decrease the joint strength even when a very water-resistant glue is used. But such service conditions would be almost as detrimental to solid furniture as to veneered furniture, because even in solid furniture the members are joined together with glue.

Fig. 1. Second floor hall, Davanzati Palace, Florence

DEPARTMENT *of* ARCHITECTURAL DECORATION *and* FURNITURE

The Italian Renaissance—Our Cultural Heritage

By . . . . . Roi L. Morin

AS the Metropolitan Museum of Art is currently presenting a special exhibition of the arts of the Renaissance in Italy, it is not amiss to reiterate a few words concerning the influence which this age has played upon our national culture, and how much we should treasure the splendid heritage of these bygone days.

Viewed now in the proper perspective of time, we can marvel at the splendor of the colorful pageant of the Italian cities in the flower of the Renaissance. The rapid transition from the simplicity and parsimony of the XIIIth century to the sumptuousness and luxury of the XVth, fires the imagination, with its parade of ostentation and display. It was an age the equal of which, at least in the field of decorative arts, the world has never seen, and probably never shall see again. It was the pure form of classic art made fantastic by the emotions of a romantic epoch.

Today we may decry the onward trend of civilization that strips the old world of its treasures, but we must remember that this pillaging enriches us, as collections like the Bardini and Davanzati are brought here. It is engaging to see familiar pieces from diverse collections which have been scattered, come together again at the Metropolitan Museum, for they are proud and lordly things, these carved and painted *cassoni, sedia Dantesca,* these blue and gold Madonnas by Della Robbia, these portraits by Tintoretto and Botticelli. This

table was designed by the illustrious Vasari, while that *cassone* was moved for centuries, from place to place, through the stately halls of the Davanzati Palace. This statuette from Leonardo's studio is of Sforza, and must have been touched by Isabella d'Este, while that faldstool was used by no less a personage than Cosimo de Medici. All the glorious pageant of the *Golden Age* stalks majestically again before us; let us pause for a moment and trace it back to its origin.

While the Northern races were engaged in their feuds, the Italians were extending their far-flung commercial lines into regions never ventured, and the ships came back heavily laden with precious things, which, in the short space of a century, made the nobility and gentry of Florence, Venice, Sienna, Milan and other cities rich beyond dreams of avarice. This treasure happily fell into hands which made a dignified use of it, for art influenced and qualified every pursuit of these people. From the merest kitchen utensil to the most pretentious of armorial bearings, from the simplest of daily duties to the conduct of wars, the life, manners and possessions of the Italians of the Renaissance were graced with form and color.

Fig. 2. XVIIth Century carved oak, tooled leather armchair, one of a set of six

(Formerly in the Henry Symons Collection)

The clothes they wore were of the most exquisite materials and workmanship, of blue and crimson silk velvet brocaded with gold and silver, while their belts, chains, trinkets and poinards were delicately fashioned of gold and silver, set with pearls and precious stones. Their villas and palaces, even those of patricians, surpassed in splendor and beauty those of any other people in Europe. The beauty and quality of the furnishings of these residences are still evidenced today.

The characteristic Italian interior of the early period was plain, with only a few pieces of furniture, such as *cassoni*, stools, benches and tables but the whole was highly colorful. The walls were covered with tempera frescoes, often with geo-

Fig. 3. Cassone, with painted and pastiglia decorations, Florentine, circa 1400

(From the Metropolitan Museum of Art)

FIG. 4. LIVING ROOM IN HOUSE OF MRS. ALICE McLEAN, NEW YORK

DeSUAREZ & HATTON, ARCHITECTS

metrical diaper patterns or conventional flower and foliage, with a rich frieze. The paintings were often made to depict hangings from regular points, forming festoon-like draperies. The main apartments on the lower floors sometimes had vaulted ceilings embellished with frescoes with arabesques. Every palace of note had its courtyard and arcade, with the stone stairway descending into it, and the sculptured wellhead. Most rooms had the plain beamed ceiling, the splayed and shuttered windows, as are found in the Davanzati Palace, and the plain tiled floors.

The use of gilt, pastiglia and polychrome, in other words painting as distinguished from carving, played the strongest part in the decoration of the early Italian interior. Fig. 3 shows a beautiful Florentine *cassone* enriched with a painted pattern of the conventional Florentine lily. These patterns were sometimes picked out in silver or gold on a background of ultramarine. Often *cassoni* were faced and flanked with painted panels, depicting tales, festivals, pageants, etc. Some of the most noted painters of the day were employed to execute this work and panels of this type are so valuable that they were often removed from the *cassone* and hung in famous European galleries.

Fig. 5. Carved walnut and gilt mirror frame, XVIth Century, Florentine

(Formerly in the Davanzati Palace)

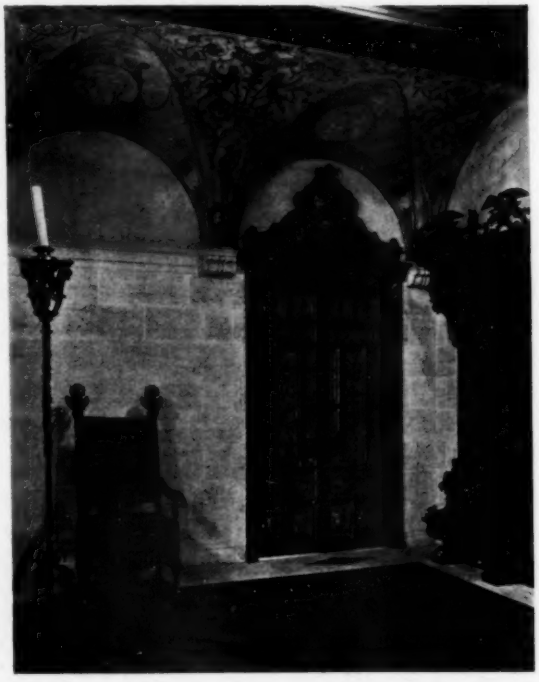


Fig. 6. Corner of Music Room, "Shallow Brook Farm" Benjamin Wistar Morris, Architect

Fig. 7. Venetian Carved Wood Cassone, Circa 1500 A. D. Formerly in the Duveen Bros. collection

(Courtesy of Philip Lehman)

One of the earliest and principal achievements of the Italian Renaissance, at least in the field of decorative arts, is the introduction and extensive use of *intarsia*, or inlay decoration. It began with the simple use of stained woods in geometric pat-

tern on objects of furniture, and developed into the fabrication of huge wainscots in mosaic, depicting landscapes, mythology, etc.

As the Renaissance of the classic arts gained impetus, decorative painting gave way to antique forms. There was a marked change in the manner of treating interiors,—pilasters, cornices, friezes of Greek and Roman character were introduced, though treated with polychrome decoration. The simple beams gave way to the coffered and panelled ceilings, treated, in the principal apartments, in gold and color. Chimneypieces of classic design, in stone and marble came into fashion. The mastery of perspective brought painting into marbles, and did not succumb to the classic revival for nearly half a century later.

Furniture follows architecture in design and as it wasn't until the middle of the XVth century that the nobles of Tuscany began to build their palaces in the new manner, so it wasn't until the latter half of the XVth century that we begin to find the familiar *credenzas,* cupboards and *cassoni,* divided into the more nearly square classic panels, separated by fluted pilasters, supporting cornices, and carved in the now familiar Renaissance manner.

Fig. 10 shows a particularly fine example of the "Dante" chair, so popular in this age. This piece

Fig. 8. Guest Room, "Shallow Brook Farm," Mt. Kisco, N. Y.
Benjamin Wistar Morris, Architect

extensive use for decorating huge wall surfaces with fresco.

There seemed to be no end to the pomp, luxury and display. Nobles and wealthy patricians kept open house, and vied with each other in the magnificence of their appointments and the splendor of their palaces. Laws were even passed to limit the expenditures at festivities. Florence reigned supreme in the arts. Venice, because of her safety and isolation of the canals, continued to build her fanciful Gothic palaces, of gay colored

is of walnut, as was most Italian furniture, with intarsia in geometrical patterns, and a leather seat and back. It is in the collection of Mr. Philip Lehman, and was loaned to the Metropolitan Museum for this special exhibit.

The "Dante" and "Savonarola" chairs are folding, and were probably so popular because they could be so readily moved about. The richly embroidered velvet and silk cushions and backs, with fringes, were not substituted for the leather until a later period.

XUM

Fig. 7, also loaned by Mr. Lehman, shows what is perhaps one of the finest carved *cassoni* in existence today. It shows the influence of antique sarcophagus in form and decoration. The low relief carving shows it precedes the florid, heavily carved Roman pieces with their mythical figures and grotesques.

The beds of the early period were designed with panelled head and foot boards, and raised on a dais or *predella,* and were painted, gilded or polychromed. At the close of the Quattrocento the richly carved and gilded beds as shown in Fig. 8 came into fashion. Counterpanes were of embroidered silks, damasks and other fine stuffs, of

Fig. 9. XVIth Century Carved and Gilt Walnut Bed

generous size, with gorgeous fringes trailing to the floor. Some beds were high-posted, with lordly canopies of silks and velvets.

Tables were of the trestle, center and pedestal, and the monumental type, with stretchers secured by wooden pins, and supported with heavy ends inspired by antique models, with leaves and scrolls, and claw feet. The latter table became a distinct part of the Florentine interior.

In the high Renaissance, or period immediately after the Quattrocento, the art of this glorious epoch reached its zenith. Architecture was perfected. It was the age of Bramante, Peruzzi and Michelangelo. Furniture and decoration were at once elegant, dignified and imposing. Design was bold and vigorous, yet detail was delicate, suave and gracious. No period has ever been as inventive and facile in modelling and composition. It was the great climax of a wondrous epoch. Rome, heretofore in the throes of poverty and strife, now became the center of art and culture, succeeding first Florence, and then Venice*.

*"The Venetians were magnificent by nature. Luxury became them like their garments of brocades. It has been said that they had the gift of being gorgeous without being barbaric, magnificent without being pompous, and dignified without being stiff."—From "A History of Italian Furniture" by Wm. Odom.

The decorative treatment of interiors surpassed anything imagined heretofore. The walls of apartments were either hung with fine stuffs, tapestries, rich damasks and cloth-of-gold, panelled with wood or marble, with all-over patterns of intarsia, or covered with priceless frescoes. The coffered, panelled and beamed ceilings were elaborately carved and richly decorated in gold and colors. Vaulted ceilings were embellished with fanciful frescoes, a modern example of which is shown in Fig. 6.

In contrast to this sumptuousness of decoration is shown a restoration of an apartment of an earlier period, Fig. 1, a corner of the second floor hall in the Palazzo Davanzati. The plain stucco wall and simple tile floor belong to the first half of the Quattrocento, and though none the less refined, do not show the bold composition and decorative detail of the high Renaissance.

Fig. 4 shows a high (two story) living room in a New York residence, fashioned more after the manner of the smaller country villas of the Renais-

Fig. 10. "Dante" Chair, Venetian or Lombard, XVth Century

(From the Philip Lehman Collection)

sance, the lesser known ones, of the type designed by Vasari.

Fig. 2 shows one of a set of rich tooled leather armchairs, of the later, or Baroque period, which were sold during the past season at the Anderson galleries.

Fig. 5 is one of the finest relics collected by Prof. Volpi, after restoring the Davanzati Palace. This piece, of distinct classic pattern, showing how freely designers copied parts of antiques, is of the early XVIth century, but being of Florentine

origin, shows more restraint in design than was manifest in Roman furniture.

The present exhibition at the Metropolitan Museum only serves to recall again how the riches and splendor of the art of the Renaissance in Italy have directed our national cultural development since the days of the ascendency of McKim, Mead and White. It is common knowledge now that the majority of praiseworthy structures, both public and private, town and country, that have been built since 1890 were inspired by Italian models. It has been said that the American country house had little character and no convictions until Charles A. Platt began to rear his stately Renaissance edifices.

And it is gratifying to know that an extraordinary interest is being manifested by the public in the exhibit.

Early Spanish Plasterwork

WILLIAM HOLABIRD

THE death, on July 19, 1923, of William Holabird, F. A. I. A., marks the passing of one who has been an outstanding factor in the art of building construction during the past four and one-half decades. During that period more advances have been made than in the entire previous existence of the world. To Holabird and Roche can be attributed the invention and designing of the first steel-skeleton frame building, the Tacoma Building in Chicago, which revolutionized building construction. They also devised the multi-basement level building and successfully solved the construction difficulties involved. With this leadership in structural development they have maintained a most enviable position as planners and designers of important buildings.

William Holabird was a commanding figure. Large, physically and mentally, he possessed great energy and indomitable persistence in combination with an ability to secure and retain the confidence and respect of his fellows.

Born in New York State on September 11, 1854, Mr. Holabird was graduated from the High School in St. Paul, Minn. In 1873 he entered West Point, remaining there two years. Afterward he came to Chicago and entered the office of W. B. L. Jenney, remaining there a number of years before organizing the present firm of Holabird and Roche.

Mr. Holabird is survived by his widow, Mrs. Maria Augur Holabird, one son, Colonel John A. Holabird, and two daughters.

XUM

FORTY YEARS AGO

Excerpts from THE AMERICAN ARCHITECT, August 4-11, 1883

AT the last convention of The American Institute of Architects a committee was appointed "to consider the matter of enlarging the number of Fellows of the Institute to a greater number than seventy and to prepare amendments to the by-laws, to be submitted to the next convention for consideration." The proposed changes abolish all restriction upon the number of Fellows of the Institute, restoring the regulations for admission to that grade substantially to the old form. The character of candidates for Fellowship is to be officially investigated and a three-fifths vote of the Trustees is requisite for an election.

* * *

The object of these amendments is to assist the Institute "to increase the number of its Fellows so that it shall embrace a large majority of the able and honorable members of the profession who have been long enough in practice to have made a record for themselves;" adding further, that in providing for the continuance of the present rules, which require that members of the Institute shall be notified of the candidacy of applicants for Fellowship, and impose upon them the duty of interposing objections to the admission of men whom they know to be incompetent or unworthy.

* * *

Another "invitation to architects" has been issued for plans of a building to be used as a cotton exchange. Complete plans and details with a "full detailed bona fide estimate" are to be submitted by the first of September. The program gives in detail the number and size of rooms which gives the idea that a plan has already been prepared. "No premium is offered to competitors" and a careful search through the whole document fails to reveal any promise or suggestion whatever that those who accept this extraordinary invitation will be regarded or treated otherwise than as simple gudgeons, who do not know enough to see whether there is any bait on the hook before biting at it.

* * *

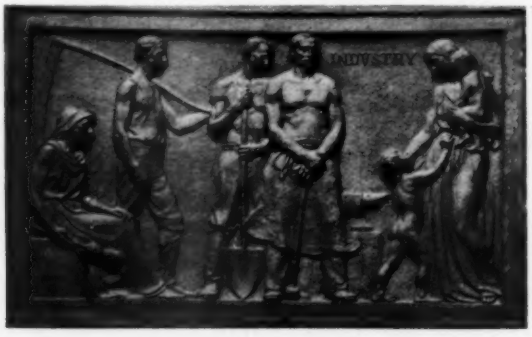
The new bridge across the Niagara River will possess unusual interest as being the first example of the modern "cantilever" system to be completed in the United States, although another is now building in British Columbia which will be finished at about the same time. The first, and only example of this construction yet actually completed, was the ill fated Tay Bridge in Scotland, but its advantage in point of economy is so great as to lead engineers to regard it with favor, and the Tay Bridge itself is to be rebuilt in the same manner.

* * *

Another novel form of bridge construction has been offered in London by the City Architect, Mr. Horace Jones. He proposes a low-level bridge, the main span of which would consist of straight lattice girders hinged at ends nearest the shore and meeting in the middle. Their outer ends are to be hung by chains from immense arched girders overhead. To open the draw it would only be necessary to wind up these chains, which would be quickly done, when the two halves of the draw would rise, leaving a wide, clear waterway between them.

* * *

Illustrations: The "Berkshire," New York, Carl Pfeiffer, architect, New York. The Sigma Phi Chapter House, Williamstown, Mass., James G. Cutter, architect, Rochester, N. Y. House for Dr. W. Finley, Denver, Col., F. J. Sterner, architect, Denver, Col.



DEPARTMENT *of* SPECIFICATIONS

THE specifications for mixing mortar should be explicit with respect to the kind of mortar to be used for the various portions of the work if more than one kind is involved. Generally speaking, the average mortar is one of the following kinds: Neat cement mortar, gauged cement mortar using lime as the gauging agent, lime mortar, gauged lime mortar, one of the patent brick mortars, of which there are several now available, and special pointing mortar for exterior stone work. Quite often it may be necessary to use a mortar that has been waterproofed integrally by one of the several available waterproofing mediums. Fire clay mortar sometimes enters into consideration. Grout is often used in masonry work for the filling of joints, and is especially valuable where a watertight mortar is desired. Any other kinds of mortar would be a combination of two or more mortars mentioned here.

In the mixing of mortar the ingredients should be specified in their proper proportion with the same care that is given similar specifications for concrete. All mixing preferably should be done by machine, but, of course, in the smaller operations hand mixing is usually resorted to. For all except the patent brick mortars, it is believed that the contractor usually can be depended upon to mix the mortar in good fashion if the specifications and the superintendent control the measuring of the ingredients and the period in which the mortar is allowed to soak if it is a mortar which has no Portland cement in it. This, of course, applies more specifically to lime mortar which should be allowed to soak in the boxes for at least three to four days instead of using within two or three hours after mixing has commenced. The longer soaking period is especially desirable where quick lime is used, and is not so necessary when hydrated lime is used.

For cement mortar the usual proportion is one part of cement to three parts of sand. This mortar is an exceedingly stiff or "short" mortar which unless very carefully handled, will produce a poorer wall than if a gauged cement mortar were used. Probably the only idea involved in the use of a neat cement mortar is to insure what one might wish to believe is the most substantial construction possible to obtain. However, the addition of lime either in paste form obtained from the quick lime, or in the dry powdered hydrated form, is more desirable because of the plasticity given the mortar and its resultant easier spreading qualities, thus insuring actually more mortar between the brick than where the "short" neat cement mortar is used. The lime gauging usually is made ten per cent by weight of the cement used. Note that this proportion is by weight and not by volume and refers only to the cement used. In many cases the use of the cement mortar with twenty per cent gauging is considered economical and serves some purpose in making a cemented joint that will permit thin joints and the correct amount of slushing.

In the lime mortar classes in these days of hurried construction work it is customary to specify a generous gauging of cement where lime mortar is to be used except in the case of one or possibly two story buildings or similar work, where about the only actual load on the wall is that of the masonry itself. Many masons prefer the use of lime mortar gauged with ten to twenty-five per cent of cement proportioned to the amount of lime used. For average work where possible settlement in the joint mortar is of no great consequence, the use of lime mortar with this gauging is considered good practice, especially so if the lime, where quick lime is used, has had a sufficient time to soak.

The pure lime mortar without any cement admixture is generally used for the setting and backing of limestone and other stone masonry that may be stained by cement, and for minor purposes, especially where no weather exposure exists.

The use of the patent brick mortars is coming more into vogue as the years pass, but it is peculiar to find that while some masons are violently opposed to its use and will go to any subterfuge to prove its inefficiency or difficulty, other contractors with equal vociferousness, will claim that they would not revert to the "old-line" mortars under any circumstances, and will be equally as adept in attempting to force the architect to approve their use. The mixing of these patent mortars generally is controlled by the printed instructions of the manufacturer, but it is well to caution the specification writer against the use of a great amount of sand, that is, a greater amount than the manufacturers of the mortar recommend. Many good mortars either cement, lime, gauged mortars, or the patent brick mortars, have been ruined by over-sanding, and the architect who does not control the mixing of the mortar to a proper conclusion, may be influenced against the use of any certain kind of mortar in such cases.

Waterproofed mortar is made by a cement or a cement and lime mortar, into the mixing water of which there has been added a waterproofing chemical that at times really has accomplished the desired object. There is no doubt that the mortar may be made watertight, and that the resulting wall will be watertight if proper care is used in filling all joints and doing careful pointing of exposed faces after the work is laid up. The specification writer's careful investigation will so

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form his judgment that almost any one of the waterproofing agents that really waterproof and not dampproof the mortar will produce a mortar that will serve any watertight purpose that may be involved in such masonry work.

Pointing mortars may be made of non-staining cement of the domestic or foreign brand, or may be simply lime clay soaked a long time, and that has been gauged with a small amount of non-staining cement. In this connection it may be well to remark that some of the patent mortars may stain limestone where others may not. Personal experience is the best judge for this as some mortars that should be staining mortars because of the iron oxide content, in actual use have not stained stone, while the same mortar used in other places has done so. Of course, the kind of sand used may have influenced the staining properties of the mortar. For pointing mortars it is quite often customary to use a fine sand, and especially a white sand for giving the mortar a plastic body and making it lean enough to work into the joints to the proper depth required for good pointing.

Fire clay mortar, of course, is used only where fire brick or fire clay flue linings are provided. The fire clay mortar has to be mixed to a "creamy" consistency, and generally should be mixed quite carefully in accordance with the instructions of the manufacturer. The character of mix is especially important in the case of fire brick settings for boilers, but one should agree that if fire clay is to be used, the motive for such use is to provide a fireproof mortar, and in this case even though it is used only for filling joints in flue linings, the mixing of it should be done carefully.

Grout, which may be termed one of the mortars without much chance for argument, is quite desirable for filling the masonry joints to insure the solid bedding of the masonry in walls where such work is required. Of course in this case the brickwork first must be laid in one of the stiffer mortars not only to provide a good foundation for the grouting but to hold the grouting within the wall while it is being poured. The grout in this case as in all cases where grout is used, requires a "creamy" consistency.

As indicated above, the details of mixing the mortar, while they should be known to the specification writer and the building superintendent, need not necessarily be explained in the specifications. It is believed that if the specifications call for good mortar, and indicate the purpose for which it is to be used, the contractor when accepting the award of the contract undertakes to accomplish these results and he may be required to use the method or methods necessary to do this, regardless of whether or not specific clauses are given.

If the reader will refer to the very excellent publication of the Common Brick Manufacturers' Association, entitled "Brick," he will find all the information needed, which of course must be supplemented by actual work experience.

Where walls have both sides exposed to the weather, such as parapet walls, the mortar should be gauged cement mortar. For underground work and especially for brick foundation walls where one side retains earth, similar mortar should be used. In either of these cases a waterproofed mortar may be substituted with every assurance of more complete satisfaction. Any care expended in the construction of such walls is well spent for the extreme uses to which they are put, place a heavy demand for substantiality on the mortar. This is especially so in the case of parapet walls, numbers of which anyone can see in local inspection that are breaking up through frost action.

The lime mortars and the gauged lime mortars are used in general construction work, but not where heavy concentrated loads are to occur. In such cases, gauged cement mortar should be used, and the intervening walls may be laid either in lime mortar or in gauged lime mortar. However, in such case, and in cases where new brickwork on an extension is to be joined into existing brickwork, cement mortar, gauged, should be used to provide equal settlement through the length of the wall. The settlement in lime mortar, or even in gauged lime mortar is greater than in gauged cement mortar.

Many of the patent mortars are used in all cases where the gauged cement mortars are used, and are of course permissible in the usual straight wall work where no severe exposure or concentrated loads will be present. Some of the patent mortars will be used for setting stone, but their staining qualities must be investigated, and if this is not done, it probably would be far safer to use lime mortar without cement gauging.

The pointing mortars are of course restricted to certain definite uses.

The specifications should be explicit regarding the use of mortar colors making sure that the distribution of its use throughout the work is quite clear. Also the addition of gauging mediums should be specified to be made on the mortar board or in the mortar box where the quantity that is gauged, especially with cement, is sufficient to run the work through before setting of cement is started. Retempering of cement is not considered the best thing to do, but sometimes it is permitted if the tempering is done immediately upon the minute that setting has commenced. As it is rather impossible to expect any workman to watch the setting of mortar gauged with cement, and immediately retemper when setting has started, it is far safer to prohibit the retempering of mortar. Ordinarily this does not apply in the case of the patent mortars, most of the manufacturers of which claim that the ability to retemper the mortars is the one desirable feature above all others that should call for the approval of the architect for its use.

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Miscellaneous Specification Data

In the February issue of the monthly bulletin published by the Illinois Society of Architects there is reported a very interesting talk by Mr. William F. Wischmeyer of the office of Mauran, Russell and Crowell, architects, of St. Louis, who spoke on the subject, "The Preparation of Specifications." The following excerpts are given in the belief that they will prove of benefit to many readers.

"I know of no subject of more vital interest to the profession, nor one that is approached from so many different angles than the production of specifications. First of all, what is a specification? Most specification writers define the document as a description of materials and workmanship entering into the production of a certain type of structure. We learn from this that the materials and workmanship form the backbone of the document, while general divisions and notes govern requirements for certain specification work.

"Right here I might mention what I think to be some of the qualifications a specification writer should have. He should be well versed in building construction. This requires constant study and a complete and comprehensive catalog file. An architect or designer will have a superficial acquaintance with materials and will use certain materials in design which will not weather well, and it should be the privilege and the duty of the specification writer to enlighten him on the subject and to suggest proper materials. Such co-operation between designer and specification writer will produce the best results, as I know that designers have very little time to go into the quality of material.

"Another important factor is the necessity of keeping in touch with the chief draftsman, gaining through him all the information required, and seeing that no mistake is made in detailing the work. This supervision will allow the specification writer to investigate the conditions before the final rush to get out the specifications.

"The specification writer should keep in touch with new materials and should make it a point to investigate results of those he has used. He should never fail to visit buildings for which he has written specifications. He should fairly constantly keep in touch with the superintendent and consult him frequently about specifications and drawings and seek information about how he might improve his work. He should consult with the contractors and sub-contractors, and never refuse to give a few minutes of his time to all materialmen.

"Workmanship, as I understand it, means the skill and knowledge in the placing of certain materials demanded of the workman in order that the work may be executed in a satisfactory manner. In this connection the specification writer should discuss with the designer the way in which he wants the materials prepared. For instance, the specification writer may say that the job is to be laid in cement mortar, perfect to line, all joints troweled, weather-cut, etc. The designer goes out to the job, sees it, and then rushes back to say he had a cut joint in mind and the workmanship has practically destroyed his entire scheme. This does not mean that the designer should be hampered by the specification writer or chief draftsman because the design should be studied from every angle before being condemned as being impracticable.

"How does the specification writer gain this information as to workmanship? First of all, he must be familiar with materials. He should have spent a few years drafting, several years as a superintendent, and should have made it his business to have visited as many manufacturing plants as possible to acquaint himself with the manufacturing processes. Then, he should place his confidence in reliable contractors and sub-contractors so that he can obtain first-class information from them. It is an excellent plan to visit buildings of high grade contractors and architects and compare them with similar work of contractors of lesser ability. The specification writer learns much of workmanship by observation.

"In dealing with materials which enter into the work I select my material and place a note on the drawings, making sure that the information is placed on all sections and in plans and elevations to explain the work more thoroughly. I keep in constant touch with the chief draftsman, and when the drawings are approximately ninety per cent completed, I secure a set of drawings and a tablet on which I make a list of general headings in alphabetical order as they occur, placing the name in the lower right hand corner, and leaving two or three blank sheets after each alphabetical heading. These sheets of notes which I make are kept as record sheets. After collecting the various materials properly I assemble the sheets in the order I wish to classify the specifications, numbering with red pencil the notes in the order of sequence of the specifications. I then proceed to dictate the first draft of the specifications, leaving plenty of margin for corrections and additions. During the time I am preparing these preliminary specifications the draftsmen are completing the drawings. When the drawings are practically completed, I make sure that all materials are properly noted, sections properly made, and if anything has been added, pencil notes are made on the drawings. At the same time I correct the specification draft and turn it over to the stenographer for final writing.

"There is one point I want to emphasize. The architect should realize that the specification writer should really be the man at the head of the drawings. The chief draftsman should con-

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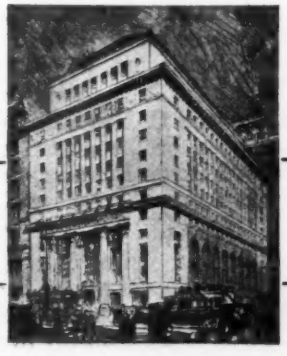

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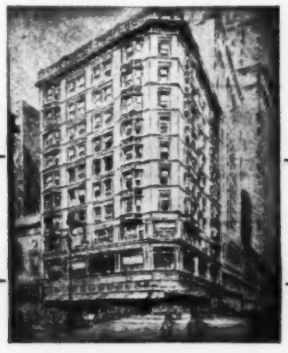

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trol the men and constantly work with the specification writer."

A subject that often causes the specification writer a great deal of trouble is that of interior decoration, particularly as it applies to the use of wall paper. In the "Paper Hangers' Manual" published by the Wall Paper Guild of America, the specification writer will find many splendid suggestions, which upon analysis, will indicate how a specification that can be depended upon may be prepared for this work. On reading through this pamphlet, the specification writer will be impressed with the impossibilities of briefing it in outline form, which then can be expanded into a complete specification in proper form. For instance, from the headings of the various sections the following rough outline is made: REMOVING OLD PAPER AND KALSOMINE, REMOVING VARNISH OR PAINTED PAPERS, FILLING UP HOLES AND CRACKS, EXAMINING THE PAPER, MEASURING FOR CUTTING, PASTING AND TRIMMING, HANGING THE PAPER, PAPERING THE CEILING, LINING PAPERS, HANGING BORDERS AND SPECIAL DECORATIONS.

The specification writer from this outline may prepare a specification that should meet with the approval of all reliable decorators and as a result, bring to the completed job, the satisfaction that a good piece of work always brings.

PERSONALS

R. Bernard Kurzon, architect, has moved his offices to Suite 1210-30 North Dearborn Street, Chicago, Ill.

J. Ed. Overbeck, architect, has moved his office from 1209½ Main Street to Suite 519, Wilson Building, Dallas, Texas.

Carleton M. Winslow, architect, has moved his office to 922-24 Van Nuys Building, Los Angeles, Cal.

Randolph F. Ware, architect, announces the removal of his offices to 341 York Street, Newport, Ky.

W. W. Kays, architect, of Santa Ana, Cal., has recently sold his architectural business to M. Eugene Durfee, architect, of Anaheim, Cal.

Harold E. Burkett, architect, has opened an office for the practice of architecture, in the Commercial Building, 546 Pine Avenue, Long Beach, Cal.

Herbert Foltz, architect, announces the removal of his offices to Suite 704-710 in the new J. F. Wild Building, 129 East Market Street, Indianapolis, Ind.

Announcement is made of the establishment of a partnership between J. Frank Collins, of Spartanburg, and Jos. B. Simpson, of Greenville, for the general practice of architecture, with offices in the Andrews-Law Building, Spartanburg, S. C. Manufacturers' catalogs and samples are desired.

McWethy & Greenleaf, architects, have moved their office from 505 Seventeenth Street to 2910 Telegraph Avenue, corner Twenty-ninth Street, Oakland, Cal.

Lyman R. Walker, architect, J. L. Maver, associate, has opened his office for the practice of architecture at Room 600, 1900 Euclid Avenue, Cleveland, Ohio.

Leroy Lewis, Jr., formerly of the office of Schmidt, Garden & Martin, architects, Chicago, Ill., is now associated with Albert Kahn, architect, Detroit, Mich.

Meanor & Handloser, architects, have moved their offices from the Robson-Pritchard Building to the fourth floor of the Professional Building, Huntington, W. Va.

Edward C. Nowers Brett, architect, has opened an office for the general practice of architecture, at 502 Slavin Building, Colorado Street and Fair Oaks Avenue, Pasadena, Cal.

It is announced that the name of the Watson Engineering Company has been changed to the Watson Company, architects and engineers. The address of the company remains the same, namely, 4614 Prospect Avenue, Cleveland, Ohio.

Wilbur T. Mills, of Columbus, Ohio, formerly president of the Mills and Millspaugh Company of that city, announces that he is resuming the independent practice of architecture at 900 Atlas Building, Columbus, Ohio.

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THE American Architect and the Architectural Review has gratuitously set apart this section for use by The American Specification Institute. The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.
Publishers, The American Architect and The Architectural Review.

TENTATIVE SPECIFICATIONS FOR TURBINE DRIVEN—CENTRIFUGAL BOILER-FEED PUMP

(The form of this bulletin conforms to the arrangements of Elements of a Specification as given in Bulletin No. 5, Analysis of a Specification, Revised January 20, 1923.)

I. CONTRACT AND LEGAL

1. Parties:
2. Drawings:
3. Agreement:
4. Terms of Payment:
5. General Conditions:
6. Regulations and Codes:
7. Standards:
8. Patents:

II. ECONOMIC

Scope of Contract:

9. Work Included:
10. Schedule of Work:

Method of Analysis and Comparison of Bids:

11. Methods:
12. Basis:
13. Form of Bids:
14. Conditional Payments:

III. GENERAL DESCRIPTIVE

Characteristics:

15. Turbine:
16. Boiler Feed Pump:

Service Conditions:

17. Location of Equipment:
18. Railroad Siding:
19. Visiting Site:
20. Working Limitations:
21. Ultimate Requirements:

IV. PRELIMINARY PREPARATION

22. Field Measurements:
23. Shop Drawings:
24. Samples:
25. Models:

V. MATERIALS

26. Properties, Chemical and Physical:
27. Sizes, Weights, Gauges:
28. Quantities:

VI. DESIGN AND CONSTRUCTION

Shop Work:

29. Centrifugal Pump Design:
30. Capacity of Pump:
31. Pump Governing Devices:
32. Pump Balancing Device:
33. Pump Impellers:
34. Pump Guide Vanes:

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42: Steam Turbine Design:
43: Steam Conditions:
44: Turbine Capacity:
45. Turbine Governing Devices:
46. Turbine Wheel:
47. Turbine Shaft:
48. Turbine Bearings:
49. Turbine Case:
50. Turbine Reversing Chambers:
51. Turbine Packing:
52: Turbine Steam and Exhaust:
53: Turbine Mounting:
54: Noise:
55. Lagging:
56. Forced Lubrication:
57. Safety Valve:
58. Throttle Valves:
59. Piping:
60. Foundation Bolts, Templates, etc.:
61. Gauges:
62. Tools:

FIELD WORK:

63. Foundation:
64. Erection:
65. Finish:
66. Protection of Work:

VII. SCHEDULES

67. Shop Production:
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VII. RESULTS

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72. Turbine Steam Consumption Guarantee:
73. Pump Capacity Guarantee:
74. Tests:
75. Rejection:
76. Insurance:

Competition for a Design for a Small House

THE Community Art Association, of Santa Barbara, Cal., announces a competition for the best design for a house costing not more than $5,000.

The prizes are as follows: A first prize of $500, a second prize of $200, a third prize of $100; five honorable mentions accompanied by prizes of $20 each, five mentions without money prizes and honorable mention, *"hors de concours."*

Drawings must be received by September 1.

For further particulars, address Mrs. O. L. Hathaway, Business Secretary, 936 Santa Barbara Street, Santa Barbara, Cal.

Second Pan-American Congress of Architects

THE second Pan-American Congress of Architects will meet at Santiago, Chile, from September 10 to the 20 of this year. The first Congress took place at Montevideo, Uruguay. Delegates from all of the American Republics will be present at the Santiago meeting. It is to be held under the auspices of the government of Chile. The program is most comprehensive.

The Executive Committee of The American Institute of Architects has decided to send notices to its members, calling attention to the important Congress, and suggesting that they visit South America and represent their organization. The Congress will meet in September, the Spring in Latin America, and a most attractive season. The steamer companies are quoting a round trip ticket from New York to New York—via the Panama Canal, West coast, Trans-Andean Railway and the East coast lines—for the sum of $630. This entire trip could be made in sixty days, permitting of a stop at Lima, Peru, ten days in Santiago, an equal time in Buenos Aires, Argentina, and stops in Montevideo, Uruguay, and Santos and Rio de Janeiro, Brazil.

The competition for the new Municipal Palace to be erected in Montevideo, Uruguay, brought forth ninety-two requests for detailed information. While many of the applicants for the data have since advised us that the rules governing the contest are different from those in vogue in this country, and that it will be most inconvenient for American architects actively to compete, some fifteen or twenty seem to be engaged in the preparation of plans for submission. The date for receiving these plans has been extended to September 8, 1923.

OLD HOUSE IN ROUEN

(From the original sketch in color by Samuel Chamberlain)